Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIII. CHICAGO, ILL., MARCH 22, 1914. Number 10.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La

DEXTER Portland Cement THE NEW STANDARD

Sole Agents SAMUEL H. FRENCH & CO. Philadelphia

Phoenix Portland Cement UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX PORTLAND CEMENT CO.

NAZARETH, PA.

Sole Selling Agent, WILLIAM G. HARTRANFT CEMENT CO. Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO. Ottawa, Ill.

FIRE BRICK "MOUNT SAVAGE." None Better. "REFRACTO" thoroughly dependable for boiler work and general purposes.

FLUE LININGS of FIRE CLAY

FIRE PROOFING THERMIC FIRE CLAY HOLLOW TILE for both partition and outside use.

Union Mining Company

GENERAL OFFICES

1113-1117 Fidelity Building, BALTIMORE, MD.

Manufacturing Plants: Mount Savage, MD.

We are preparing a new mailing list for the purpose of giving only those interested the results of tests and experiments which are constantly being carried on by us showing the

DURABILITY — STRENGTH — SUPERIORITY of

"AMERICAN KEENE CEMENT"

as compared with other cements and plastering materials.

If YOU are interested send us your name and correct address.

AMERICAN KEENE CEMENT COMPANY

SIGURD, UTAH

If your previous experience with belts has been one of disappointment and loss of time and money, and has made you a grouch on the whole subject, you should learn what we have to tell about **Leather Belting** AS WE MAKE IT IN RELIANCE, SEA LION and WHITE STRIP brands

We have helped a lot of firms solve this problem WILL YOU LET US HELP YOU?

Write for our catalog, cheerfully sent on request

CHICAGO BELTING CO., 126 N. Green Street, CHICAGO

SPECIAL FEATURES IN THIS NUMBER

Ligno Concrete . . . . . Page 24

The XX Century Form of Lime . . . . . " 26

New York Dealers Hold Important Meeting . . . . . " 45

New Jersey Dealers In Annual Meeting . . . . . " 49

Building Material Dealers' Profits . . . . . " 53

Pin Your Faith to this Salesman

WHEN a Leviathan-Anaconda salesman comes up to you and says he wants to sell you a belt on a "make-good" basis, listen to him. He can tell you something worth while about the belt you ought to have.

Write our nearest house for convincing facts.

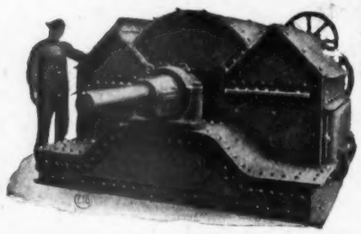
LEVIATHAN AND ANACONDA ELEVATING TRANSMITTING CONVEYING BELTING

MAIN BELTING COMPANY
Philadelphia

New York Chicago Boston
Pittsburg Seattle Birmingham

MAIN BELTING CO. OF CANADA, Ltd.
Montreal Toronto Calgary

"PENNSYLVANIA"
HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.

No other hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.
Philadelphia
New York Pittsburgh

VULCANITE PORTLAND CEMENT

TRADE MARK — VULCANITE PORTLAND CEMENT — MANUFACTURED BY VULCANITE PORTLAND CEMENT CO. NEW YORK & PHILADELPHIA — REG U.S. PAT. OFFICE

The Brand With a Reputation

ESTABLISHED 1893

Capacity (actual) 2,000,000 Bbls. the Year

FREE ON APPLICATION
FOLLOWING BOOKS:

How to Select and Proportion Aggregates.
Cement Sidewalk Paving.
Concrete Highways.
Concrete on Live Stock Farms.
Concrete Fence Posts.
Concrete Tanks.

APPLY TO NEAREST DEALER FOR PRICES

Vulcanite Portland Cement Co.
Broad Street, PHILADELPHIA Madison Square, NEW YORK

Concrete's the Thing
Lehigh's the Cement

LEHIGH PORTLAND CEMENT COMPANY — LEHIGH PORTLAND CEMENT — ALLENTOWN, PA. AND CHICAGO, ILL.

Quality
Quick Delivery
Co-operation

Lehigh Portland Cement Co.
OVER 12,000,000 BARRELS YEARLY
Allentown, Pa. Chicago, Ill.

THIRTY YEARS OF EXPERIENCE IS BEHIND EVERY BARREL OF
The Old Reliable

Giant Portland Cement

GIANT PORTLAND CEMENT

A RECORD IN LONG TIME TESTS, UNEQUALLED BY OTHER BRANDS OR LARGER OUTPUTS.

Let us show you.

Giant Portland Cement Co.
6th Floor Pennsylvania Building
Philadelphia

CANADA CEMENT COMPANY LIMITED — PORTLAND CANADA CEMENT — MONTREAL

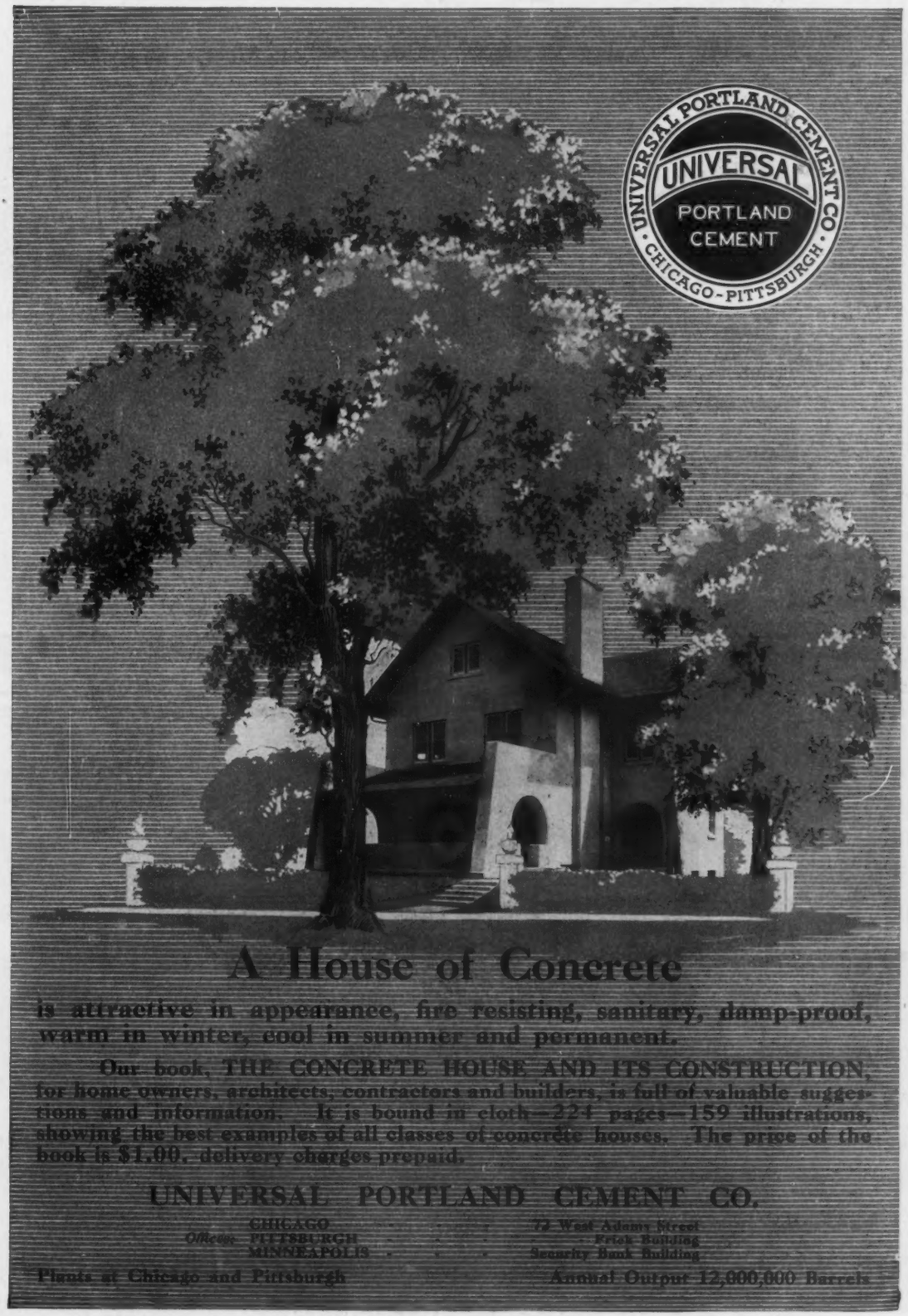
MILLS

Montreal	Port Colborne
Hull	Shallow Lake
Belleville	Marlbank
Lakefield	Winnipeg
Calgary	Exshaw

For Prices Any Where in
CANADA
Write or Wire Our Nearest Sales Office

Canada Cement Company
LIMITED

Montreal - Toronto
Winnipeg - Calgary



A House of Concrete

is attractive in appearance, fire resisting, sanitary, damp-proof, warm in winter, cool in summer and permanent.

Our book, THE CONCRETE HOUSE AND ITS CONSTRUCTION, for home owners, architects, contractors and builders, is full of valuable suggestions and information. It is bound in cloth—224 pages—159 illustrations, showing the best examples of all classes of concrete houses. The price of the book is $1.00, delivery charges prepaid.

UNIVERSAL PORTLAND CEMENT CO.

CHICAGO . . . 72 West Adams Street
Offices PITTSBURGH . . . Frick Building
MINNEAPOLIS . . . Security Bank Building

Plants at Chicago and Pittsburgh Annual Output 12,000,000 Barrels

This Train Does the Work of Fifteen Teams

Fifteen teams would cost say $60.00 a day. (The price varies in different parts of the country.) The Troy outfit would cost not more than $18.00 a day. $18.00 includes everything, even to interest on investment and depreciation. The $18.00 estimate is high, too.

That is the sort of saving Troy Reversibles are making on more than 225 different jobs. If you do big hauling, it's time to investigate. Get Hauling Book PR and full information as to what we've done for others and can do for you.

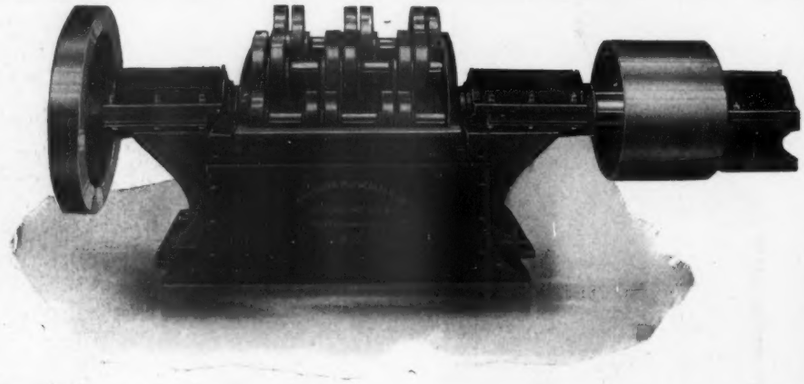
THE TROY WAGON WORKS CO., 101 E. Race Street., Troy, Ohio

DISTRIBUTORS

G. C. Hodges, - - - -	Brooklyn	So. Texas Impl. Co., - - -	Houston	Landes & Co., - - - -	Salt Lake City
Standard Supply & Equipment Co.,	Philadelphia	W. M. Pattison Supply Co., - -	Cleveland	Western Metal Mfg. Co., - -	El Paso
Eastern Ry. Supply Co., - -	Baltimore	Beall & Co., - - - - -	Portland	N. J. Dinnen & Co., - - -	Winnipeg
H. H. Hoover, - -	Pittsburgh	E. R. Bacon & Co., - - -	San Francisco	Canadian Equipment & Supply Co., -	Calgary
W. S. Brown & Sons, -	Birmingham	W. L. Cleveland & Co., - -	Los Angeles	C. Paquet & Co., - - - -	Quebec
A. Baldwin & Co., - -	New Orleans			W. McNally & Co., - - -	Montreal

The Blue Ridge Lime Company installed our smallest

PULVERIZER



March, 1910. They pulverize limestone for agricultural purposes and finish the product in one operation.

During the year 1913, they expended, with us, account of renewal of parts, $114.37.

This machine pulverizes 20 to 23 tons ten hours.

The machine will do the same for you—get one with our guaranty.

Write for particulars

AMERICAN PULVERIZER COMPANY - East St. Louis, Ill.

The Bradley Hercules Three Roll Mill

The Largest and Most Economical Break Down Mill Manufactured

Weighs 45,000 lbs.—66" Die Ring—Extreme Height 11' 1"

CAPACITY and FINENESS

LIMESTONE	CLINKER
35-50 Tons Per Hour	110-130 Barrels Per Hour
50 Per Cent Through 100 Mesh	50 Per Cent Through 100 Mesh
94 Per Cent Through 20 Mesh	94 Per Cent Through 20 Mesh

HORSE POWER

175-200 H. P. on Limestone
150-175 H. P. on Clinker

COST OF MAINTENANCE

On a Test, Pulverizing 125,000 Bbls. Clinker—Less Than One-Half cent a Barrel

WHY NOT INVESTIGATE?

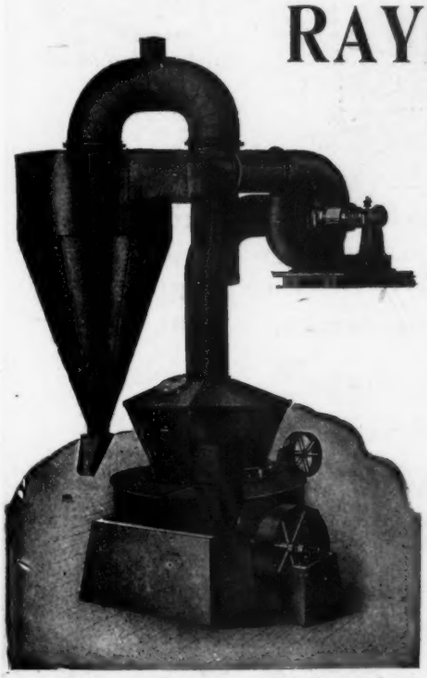
Bradley Pulverizer Company, Boston, Mass.

What One Manufacturer Has Learned After Seven Years

About seven years ago we approached a large manufacturer, in whose process a certain material is ground, with the facts concerning the advantages to him of securing a more **finely ground** and **uniform** product by the use of the

RAYMOND SYSTEM OF GRINDING

With Air Separation



He was not inclined to agree with us.

Since then several of his competitors making the same thing have taken advantage of the Raymond System, with the result that this first manufacturer has finally awakened to the fact that his competitors are getting a preference because of a finer and more uniform product.

This manufacturer is now putting the Raymond System in his plant and will unquestionably achieve the same results his competitors have enjoyed; a better product which will get the business for him and factory savings of considerable proportions.

The Raymond System has shown its ability to produce a better product, or a lower cost or both, in over 75 different kinds of material, with results in each case **guaranteed** in advance

Raymond Bros. Impact Pulverizer Co.,
1301 N. Branch St., Chicago.

Please send us your Book on Modern Methods of Pulverization.

Name .....

Street.....

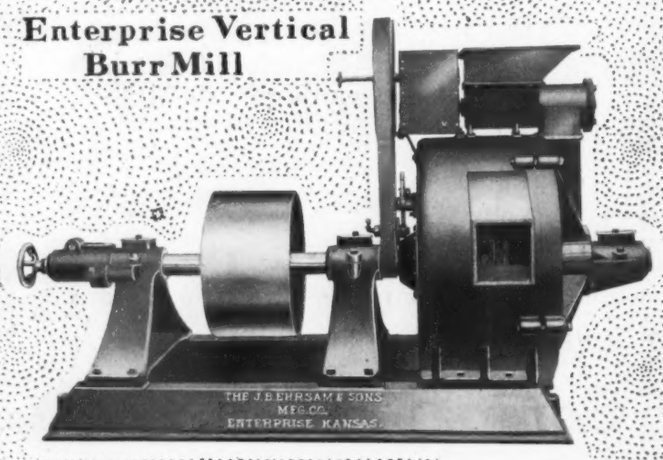
City.....State.....

SEND FOR THE RAYMOND BOOK—NOW

We design special machinery and methods for Pulverizing, Grinding, Separating and Conveying all powdered products. We manufacture Automatic Pulverizers, Roller Mills, Vacuum Air Separators, Crushers, Special Exhaust Fans and Dust Collectors. Send for the Book.

Equip your grinding plant with EHRSAM grinding & separating machinery

Enterprise Vertical Burr Mill



THE MORSHER-EHRSAM SYSTEM of GRINDING & SEPARATING will enable you to produce a finer product without corresponding increase in power.

Inertia Classifier

SEND US A SAMPLE of your material stating fineness and capacity required and we will furnish full particulars.

Horizontal Burr Mill

THE INERTIA CLASSIFIER is of inestimable value in plants where a fine material is required owing to its low cost per ton capacity and owing to the small amount of power required per ton capacity.

It can be operated in connection with Burr Mills Hammer Mills or any other type of grinding Mill.

J.B.EHRSAM & SONS MFG.CO.

Manufactures of GYPSUM PLASTER MILL MACHINERY.

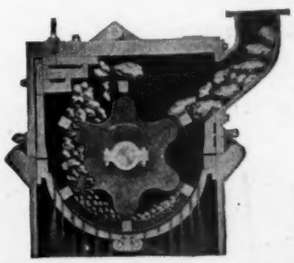
ENTERPRISE, KANSAS.

Demonstration Plant

entirely at your disposal, where we will be pleased to illustrate the following facts:

The Gardner Crusher

1. Is of the **hammer type.**
2. Will crush **any kind of material.**
3. Requires comparatively very **low power** for its capacity.
4. Needs no special foundations and is easily transported.
(Heaviest piece in No. 1 is only 350 lbs.)



Made in Four Sizes

Size	Weight Lbs.	Power	Feed	Capacity (Tons per Hr.)
No. 0	1,200	5-6 h. p.	3 in.	1-1½
No. 1	2,000	10-12 h. p.	4 in.	3-4
No. 2	4,000	20-22 h. p.	6 in.	8-10
No. 3	8,000	40-45 h. p.	10 in.	15-20

Equipped with ½ in. screen through which everything will pass.

90% through 20 mesh. 60% through 60 mesh.
75% through 40 mesh. 50% through 100 mesh.
65% through 50 mesh. 30% through 200 mesh.

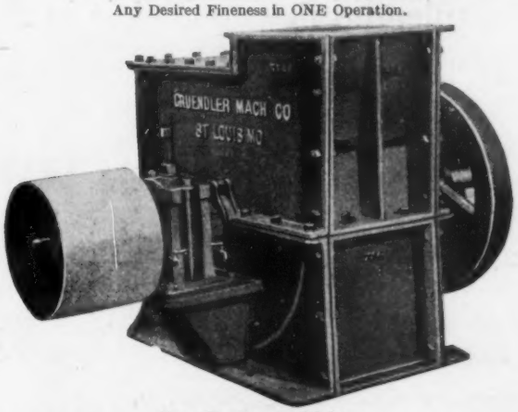
Coarser or finer product can be obtained by changing the screens and speed of machine.

There are now a large number of Gardner Crushers in actual operation in the U. S. on all kinds of material. We, therefore, know by **practical** knowledge what our machine will do on most any material and we are prepared to prove our assertions.

Gardner Crusher Co. Office: 1482 BROADWAY
Demonstration Plant: 556 West 34th Street, New York

GRUENDLER PULVERIZERS

Grind perfectly Limestone, Phosphate Rock, Coal, Brickbats, Coke, Kaolin, Shale, Marl, Fireclay, Bones, Tankage, Fertilizer Materials and Ores of all kinds.
Any Desired Fineness in ONE Operation.



One Customer Writes:
"The Crusher works to our entire satisfaction and we believe we have selected the best make for our purpose."

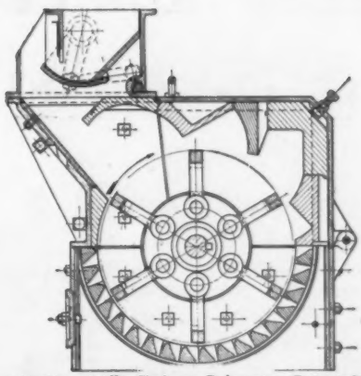
Another One Says:
"The two Crushers you have furnished us have given entire satisfaction. We are now considering putting in another machine of larger capacity; kindly state lowest prices and sizes."

We manufacture these machines in sizes from 3 to 400 tons daily capacity. The entire interior is constructed of steel and they are built for great strength and durability throughout. They are easily handled, all adjustments being made from the outside.

Write for Catalog and Prices

GRUENDLER PATENT CRUSHER & PULVERIZER COMPANY
924-928 N. FIRST STREET SAINT LOUIS, MO.

Pulverators



Cross Section of Allis-Chalmers Pulverator (Patented)

Pulverizing
by a New Principle

Note that Involute Curve The Direction of Rotation

Advise us your requirements concerning capacity and fineness wanted

Forward Sample of Your Material

Complete Rock Crushing Plants and Cement Mills—Power Plants—Electric Motors

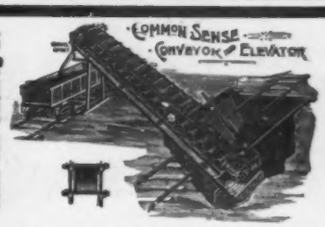
Allis-Chalmers
Manufacturing Company

OFFICES IN ALL PRINCIPLE CITIES
MILWAUKEE, WISCONSIN.

For All Canadian Business Refer to Canadian Allis-Chalmers, Ltd., Toronto, Ont.

FOREIGN REPRESENTATIVES:—Frank R. Perrot, 883 Hay St., Perth, W. A. Frank R. Perrot, 204 Clarence St., Sidney, N. S. W. Mark R. Lamb, 87 Galeria Beeche, Casilla, 2653, Santiago, Chile. H. I. Keen, 732 Salisbury House, London Wall, E. C. London, England.

Send for Catalog 25



THE GENERAL CRUSHED STONE CO.,
So. Bethlehem, Pennsylvania,

have been using one of our **Common Sense Elevators** for six years—capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND OHIO

Limestone Screenings

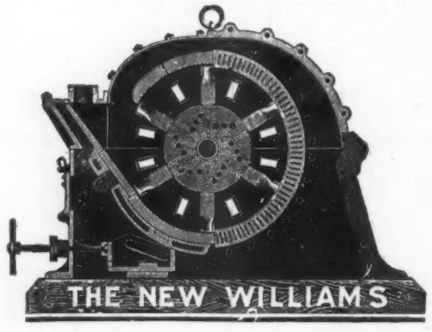
Now of little value, can be converted into a commodity commanding a fair price when ground into

AGRICULTURAL LIMESTONE

WITH

THE WILLIAMS UNIVERSAL FINE GRINDER!

The Williams Universal Fine Grinder will take your screenings and in one operation convert them into a uniformly fine product, admirably suited for agricultural purposes, a product now greatly in demand. This machine, as you will note in the cut, is adjustable to grind fine or coarse as desired, this adjustment being made while the machine is in operation, by a hand wheel on the outside.



Another feature about this machine to be remembered is that it will produce these ever uniform results **with the minimum expense for maintenance and power,** because the various methods of adjustment employed are by far the most practical yet devised. Further details regarding this machine are given in Bulletin No. 4, a copy of which should be in your hands.

Let us prove these statements; let us show you what results others are getting with this machine. Do not deprive yourself of the opportunity to increase your profits any longer. NOW is the time to ACT.

THE WILLIAMS PATENT CRUSHER & PULVERIZER COMPANY

General Sales Department, Old Colony Building

Works: ST. LOUIS, MO. **CHICAGO, ILL.** **SAN FRANCISCO: 268 Market Street**

McCully Gyratory Crusher

has perfect suspension for main shaft, removable countershaft bearing and steel gears.

Efficient oiling devices, great strength and simple construction give a perfect rolling motion that minimizes power consumption and possibility of breakage. Described and illustrated in Bulletin PM-4-58.

Rock Crushers

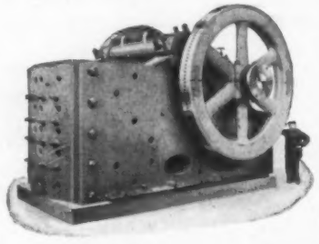
The largest crusher in the world operating on trap rock is a

Superior Jaw Crusher

Installed March, 1910, in the quarries of the Birdboro Stone Co., Birdboro, Pa. It produces 3500 to 4000 tons per day.

Built in the following Receiving Opening Sizes: 26"x24"; 42"x40"; 60"x48"; 84"x60". Described in Bulletin PM-44-58.

Write for Bulletins.



Power & Mining Machinery Co.

Works: Cudahy, Wis. **New York Office: 115 Broadway**

District Offices: Chicago, El Paso, San Francisco, Atlanta.

PRINCIPAL PRODUCTS

Rock Crushing Machinery, Mining and Smelting Machinery, Cement Making Machinery, Wood Impregnating Plants, Loomis Pettibone Gas Generators, Suction Gas Producers, Cyanide and General Steel Tank Works, Wyckoff Jigging System.

M-277.2

ANNOUNCEMENT

Our splendid new factory is in the process of completion for the manufacture of

PAPER BAGS

It will be the most modern and complete Factory of its kind. Service, quality, workmanship—the BEST

The Urschel-Bates Valve Bag Company

Toledo, Ohio

[Address all communications to the company at Toledo, Ohio.]

BRANCH FACTORIES: Niagara Falls, Ontario, Can., Pittsburgh, Penn.

AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

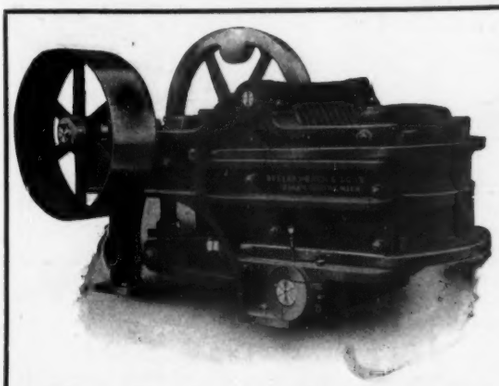
AUSTIN MANUFACTURING CO.

CHICAGO

New York Office: 50 CHURCH STREET

Canadian Agents: MUSSENS, Ltd., Montreal

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42"

Jaw and Rotary CRUSHERS

For all Rocks and Ores Softer than Granite

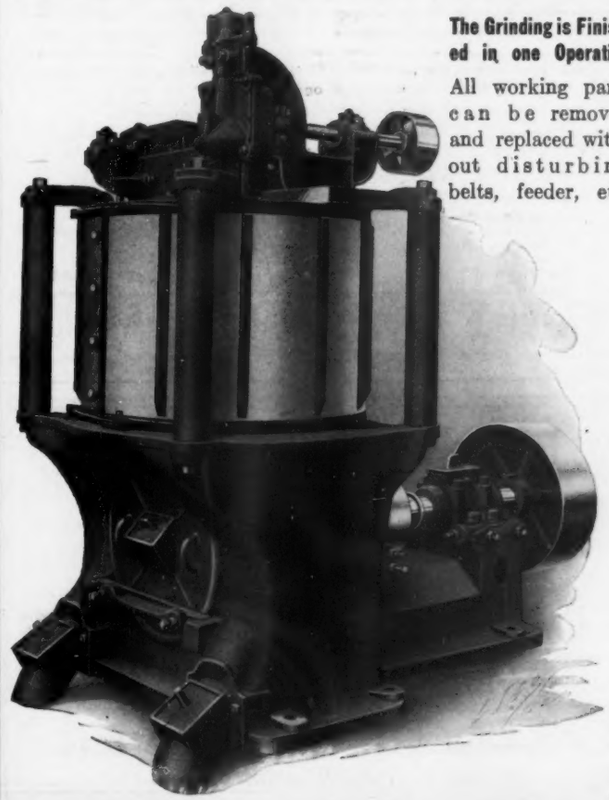
GYPSUM MACHINERY — We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

Butterworth & Lowe

17 Huron Street, Grand Rapids, Mich.

Crackers—6 sizes—many variations.



The Grinding is Finished in one Operation

All working parts can be removed and replaced without disturbing belts, feeder, etc.

BONNOT PULVERIZER

Grinds and Screens Limestone, Raw Lime and Hydrated Lime

Does it at One Operation. Gives You Any Desired Fineness

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

No. 4 Catalog Explains These Advantages

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

CANTON, OHIO

MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

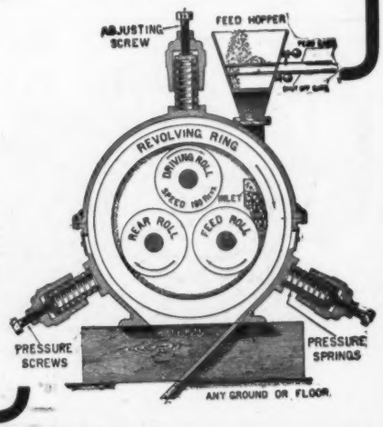
WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co. Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

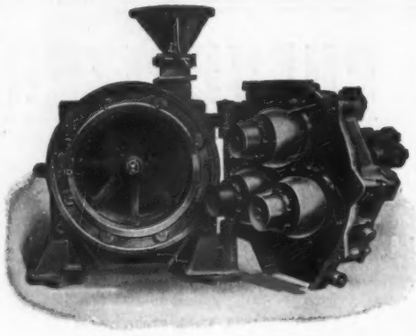
THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and Automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.



KENT MILL CO. 10 RAPELYEA ST., BOROUGH OF BROOKLYN, N. Y. CITY
LONDON, W. C., 31 HIGH HOLBORN
BERLIN-HOHENSCHOENHAUSEN



STURTEVANT MACHINERY

CRUSHERS **GRINDERS** **SCREENS**

Thirty Years of Practical Experience has taught us that no one machine is adapted to all purposes. Customers expect correctly designed machines for their special work. Our large line enables one to select properly. It consists of:

CRUSHERS—For coarse, medium and fine work on hard or soft rock. Jaw, Rotary and Hammer design.
CRUSHING ROLLS—Coarse, medium and fine. Hard or soft rock,—wet or dry.
TRI-ROLL MILLS—For medium crushing, giving Two Roll Reductions.
RING-ROLL MILLS—For pulverizing hard materials.
EMERY MILLS and HAMMER-BAR MILLS—For pulverizing softer materials.
SCREENS—Inclined Vibrating and Rotary for fine or coarse work—wet or dry.

Sampling Crushers, Rolls, Grinders and Screens. Send for Catalogue.

STURTEVANT MILL CO., BOSTON, MASS.
NEW YORK CHICAGO CLEVELAND DENVER PITTSBURGH ATLANTA VICTORIA, B. C. LONDON ENG.

Clyde Hydrator with Hood
"The common sense way"

Don't Buy Hydrated Lime

at random; ***specify "Clyde Process" Hydrated Lime.*** The material that has the qualities ***you*** want, either as a consumer or a dealer. The presence of this ***quality*** has enabled Clyde operators to sell 90% of the Hydrated Lime used in America. Insist on getting "Clyde Process" Hydrated Lime, it will put snap into the appearance of your work, it will ginger up a sick selling organization. If your dealer or producer doesn't carry this material, send us his name, we will tell you where you can get it in your neighborhood. We furnish complete "Clyde Process" Hydrating plants with capacities from 1 ton an hour up. Interesting booklets for the asking.

"The Man that put QUALITY into Hydrated Lime."

H. MISCAMPBELL, Duluth, Minn.

Patentee and Sole Manufacturer of Clyde Hydrators

Handle Metal Lath

Kno-Burn Metal Lath Sells Itself

Contractors and architects know the superiority of Kno-Burn Metal Lath by actual building experience. Our national advertising is educating the home-builder to insist upon "Northwestern" Products over unknown brands.

Kno=Burn
Expanded Metal Lath
For Every Kind of Interior Plastering Work

Kno=Fur
Expanded Metal Lath
For Stucco Work and Overcoating Old Houses

XX Century
Expanded Metal Lath
An Acid-Proof Lath for Inside and Outside Plastering

Here are three products that meet every requirement of the architect and the builder.

"Kno-Burn" Expanded Metal Lath insures walls of permanent smoothness and beauty. The plaster SURROUNDS the mesh which it grips permanently. It will not rust out, and it is made in long sheets that are easily handled.

"Kno-Fur" Expanded Metal Lath can be applied without the use of furring and sheathing. Diagonal "U" shaped ribs in the metal take their place. These ribs are as rigid proportionately as the trusses of a steel bridge. It is applied directly to the studding. For covering old houses "Kno-Fur" can be applied directly over the old clapboards or they can be removed and the metal lath put right on the studding. These features make it indispensable for building contractors and give it big sales possibilities.

"XX Century" has all the good construction points of Kno-Burn and in addition is proof against acids in the plaster.

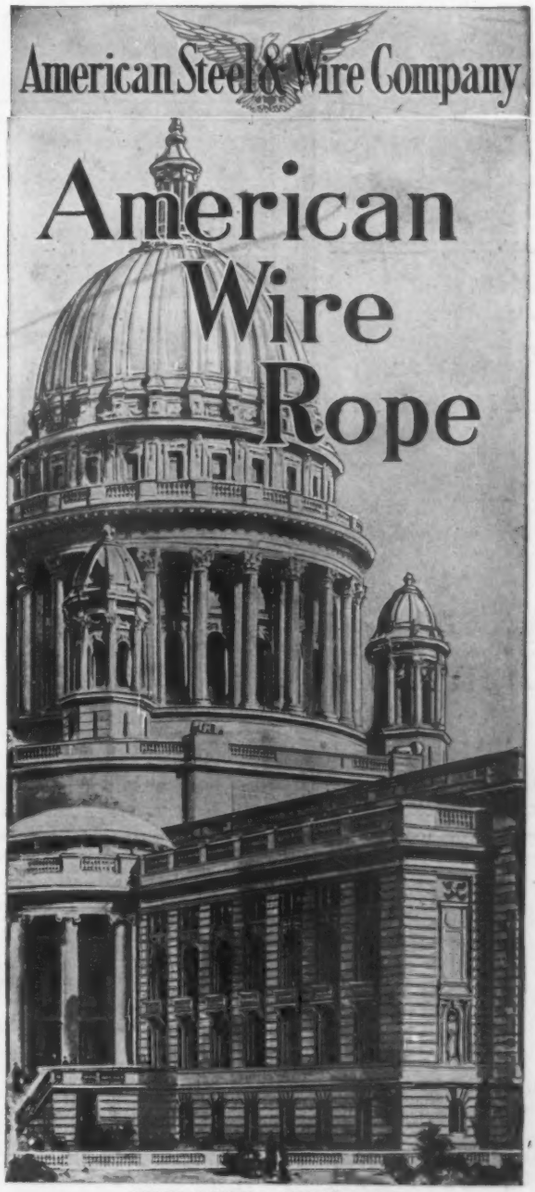
The reputation of the biggest expanded metal lath manufacturers in the world is behind every one of these products.

These products are in demand all over the land. Handle them and get your share of the profits.

Send for booklet No. 295, "Metal Lath for House Construction", and ask for prices.

North Western Expanded Metal Company

929 Old Colony Bldg. Chicago, U. S. A.



STATE CAPITOL, MADISON, WIS.
George B. Post & Sons, Architects

IN the construction of this building over 28,000 tons of granite and 2,300 tons of structural steel were used.

All of this immense tonnage was handled by American Wire Rope.

This building is equipped with Kæstner & Hecht electric elevators, using American Wire Rope.

Every pound of rope steel made is carefully analyzed and checked, and only such as conforms to our rigid tests ever is used for wire rope, whether of iron, crucible cast steel, extra strong crucible steel, plow steel, monitor steel or tico special steel.

Chicago Pittsburgh New York Worcester Cleveland Denver

Export Representative, U. S. STEEL PRODUCTS CO., New York
Pacific Coast Representative, U. S. STEEL PRODUCTS CO., San Francisco
Los Angeles Portland Seattle

MONARCH HYDRATED LIME

Be a Monarch Man

The National Lime & Stone Co.
CAREY, OHIO

Safety First!

PROTECT yourself from the annoyance and expense occasioned by the use of inferior hydrates.

Monarch Hydrated Lime

does not "pop" or "pit" in the wall.

It gauges with less plaster and spreads easier and further than others.

WE SHIP SUDDEN

This Dealer Sold Tons of It

This big office building in Toledo, Ohio, is plastered throughout—scratch, brown and white coat with

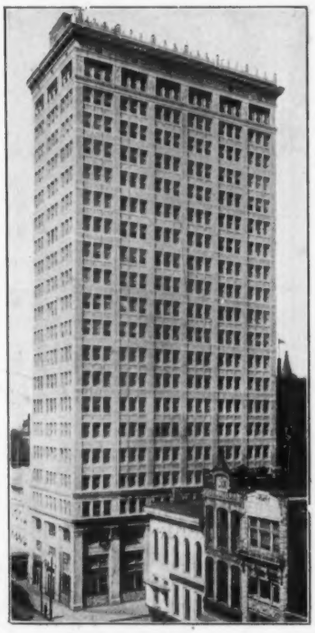
Tiger Brand Hydrated Lime

Architects in your territory are specifying this material every day on big jobs and little.

They know that Tiger Brand guarantees a smooth white wall that will never show cracks, pits or blisters.

You can "get in" on this lime business by becoming a Tiger Brand dealer.

The Kelley Island Lime & Transport Co.
Cleveland, O.



Second National Bank Building, Toledo, Ohio.
D. H. Burnham & Co., Architects.

GUARANTEED FOR SAFETY
IMPROVED SYSTEM
BANNER HYDRATE LIME
BEST QUALITY
MANUFACTURED BY NATIONAL MORTAR AND SUPPLY CO
PITTSBURG, PA.
WORKS GIBSONBURG, OHIO.

Capacity Increased to Thirty-five Kilns of Most Improved Construction to Supply the World Famous

BANNER HYDRATE LIME

PROMPT AND COURTEOUS ATTENTION GIVEN TO EVERY CUSTOMER, AND SHIPMENTS HANDLED WITH UTMOST DESPATCH.

Secure Your Supply of Banner Hydrate Lime Now While the Opportunity Is Open.

NATIONAL MORTAR AND SUPPLY CO.
A. H. LAUMAN, President PITTSBURGH, PA.

NOTICE!

Changes of copy for the issue of the 7th should be in this office not later than the first of the month.

Advertising forms for the issue of the 7th will close on the 5th.

Change of copy for issue of the 22nd should be in this office not later than the 15th.

Advertising forms for issue of the 22nd close on the 20th.

THE FRANCIS PUBLISHING COMPANY
537 So. Dearborn Street
CHICAGO, ILLINOIS

"HENDRICK"
Perforated Steel Screens and Elevator Buckets
Stand the Test
Let us figure on your requirements.

HENDRICK MFG. CO.
New York Office, 30 Church St. CARBONDALE, PA.

The Ohio and Western Lime Company

WORKS AT
Huntington, Indiana
Marion, O.
Gibsonburg, Ohio
Fostoria, Ohio
Sugar Ridge, Ohio
Tiffin, Ohio
Genoa, O.
Limestone, Ohio
Lime City, Ohio
Portage, Ohio
Luckey, Ohio
Bedford, Ind.

MANUFACTURERS OF AND WHOLESALE DEALERS IN

Ohio and Indiana White Finishing Lime, Ground Lime, Lump Lime, Fertilizer Lime, Hydrate Lime, Cement, Plaster, Hair, Etc., Etc.

MAIN OFFICE: Huntington, Ind. Branch Office: Marion, Ohio.

Capacity 8000 Barrels Per Day

"If It Is Lime We Make It"

Dealers, Attention!

We manufacture the **Strongest Lime** in **Ohio.** The reason! Our Lime Stone is of that quality. We can ship straight or mixed cars of bulk, barrels, Mason Hydrate, Lime Flour White Finishing Hydrate, also Clover Grower for improving the soil. Write or wire for prices.

Scioto Lime and Stone Company

Delaware - - - - - - - - - Ohio

This Is THE BRAND

we want every dealer, contractor and consumer to know. It stands for QUALITY HYDRATE.

MITCHELL LIME COMPANY HYDRATED MITCHELL LIME CHICAGO, ILLINOIS

MITCHELL LIME, for sixty years, has been recognized as the superior high calcium product.

We intend to hydrate it under scientific methods by the best known mechanical means.

Mitchell Hydrated Lime

will be on the market about May first.

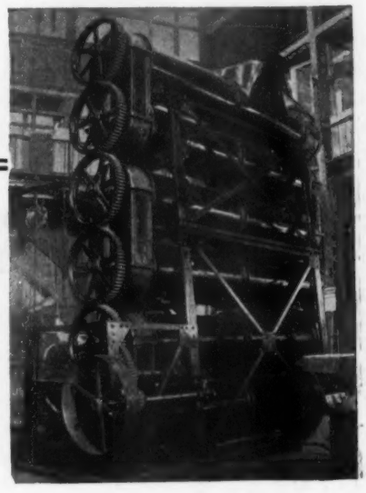
Dealers who desire to handle this material should correspond with us now as we are establishing connections. It will be a profitable one to you. Write us today.

WORKS:
MITCHELL, IND.

Mitchell Lime Company

1515 Consumers Bldg. Chicago, Illinois

HYDRATED LIME



KRITZER CONTINUOUS PROCESS

The Dealers' Opportunity for Increasing His Profit

Many retailers of masons' supplies are either overlooking or failing to appreciate how their sales might be increased by carrying HYDRATE in stock. It will not only increase their revenue directly but put them in touch with a wider range of customers who, in the course of time, might become purchasers of other supplies. This is particularly applicable in suburban cities or rural districts.

If a dealer were to circularize his community, setting forth the many advantages of HYDRATE in the suburban home where they have from a half an acre to ten acres, or for the farmer with a big farm, he would gradually build up a business in this commodity which would be surprising.

The average resident in a suburban district does not know that lime, scientifically hydrated, can be procured in small quantities and kept indefinitely in a comparatively dry place so that it can be used when the occasion presents itself. If this fact were known, practically every one of these suburbanites and farmers would keep a bag or two on hand constantly.

SOME OF THE USES

A small box of HYDRATE kept in the cellar serves to absorb the damp and purifies the atmosphere, making it much more wholesome especially where foods are kept.

HYDRATE can be used for whitewashing. Quite a number of formulas can be secured and if it is properly mixed, it will not only make the very best whitewash, but it will act as a cold water paint.

One of the advantages of using HYDRATE is that it does not have to be slaked. The process of slaking is accompanied by no little danger, especially to the novice who does not understand the explosive nature of lime when it slakes.

HYDRATE is not air slaked lime and for that reason can be used any place that ordinary slaked lime can be employed. Air-slaked lime cannot be used for plastering, but HYDRATE can. There are always times when a little patching is necessary. Laying up of stone or brick can be easily accomplished, saving both time and money.

HYDRATE, when mixed with concrete fills voids and pores and not only makes the concrete more plastic and easier to use, but by increasing its density, makes it watertight. It also has a tendency to lighten the color and make a more attractive job. Add 10% to 15% to the mix.

HYDRATE is also a well known insecticide and germicide and when used to dust around the chicken houses will not only have a tendency to purify the atmosphere but keep down vermin, especially if mixed with kerosene.

HYDRATE can be used to spray around the lawn or garden or around roots of trees, shrubbery, etc. It can be used with a mixture of kerosene or sulphur as a spray.

There are many more uses for lime around the farm that the average farmer is well acquainted with.

ONE DEALER'S EXPERIENCE

We have in mind a retailer of masons' supplies who has, by circularizing the residential section on the outskirts, and the farmers immediately adjacent, to his township, created a demand for HYDRATE in small quantities and he says that the advertising which he has secured in this manner has brought him trade for cement, sewer pipe, coal, lumber and other materials. He puts it up in one, five and ten pound packages and sells it at a nice profit. He says that many of the farmers are now keeping a bag or so constantly on hand and they tell him that they would not be without it as it is one of the handiest things to have about the farm.

One dealer mentioned the case of a farmer living about eight miles from his yard who stated that frequently when he had a little whitewashing to do it would mean sending his man with a team to the nearest station for two or three bushels of quicklime. Frequently the dealer would be sold out of the product for a few days and this would necessitate the team making another trip, thus increasing the cost.

All that is necessary to work up a nice business in this commodity is a little advertising on the part of the retailer in order to acquaint the farmers with the advantages of hydrated lime. While it is not a new product it is comparatively so to the average surburban resident and small farmer and it is to these that the retailer must make his appeal. Many a farmer has been started to using HYDRATE in this way and has become a large user in time.

Retailers of masons supplies will do well to give this subject some thought and if they are not thoroughly familiar with its possibilities, we would be pleased to give them any assistance or information which we have at hand to aid them in building up their trade in HYDRATE.

—*Mason & Builder.*

Our business is to install up-to-date hydrating plants and guarantee results. Our plants are all designed to meet local conditions. The CONTINUOUS PROCESS is the only process that has proved successful in hydrating both high calcium and dolomitic lines. While we do not recommend the batch system, however, we install them for making hydrate for the fertilizer trade, but not for general use. We would like to take this matter up personally with you and feel confident that we could interest you in our process and machinery.

The Kritzer Company

Chicago, Ill.

STONE ELEVATORS

HANCOCK STONE CO., FINDLAY, O

OUR CONTINUOUS BUCKET TYPE ON TWO STRANDS OF ROLLER CHAIN

Two Plants Which Use Them

GOETSCHIUS STONE CO., LIMA, O.

Better, Cheaper and More Satisfactory Than the Old Belt Elevator

The Chain Elevator is Mechanically Superior to the Belt Type, yet is Less Expensive in First Cost, as well as in Maintenance Throughout Its Much Longer Life.

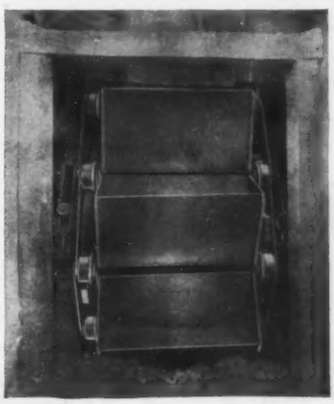
Numerous Stone Plant Operators Have Adopted Our Recommendations in Favor of the Chain Type Elevator, and Have Been Pleased with the Wisdom of Their Choice.

IN THE HANCOCK AND GOETSCHIUS PLANTS

BETTER ELEVATORS AT LOWER COST

We sell the Chain Type readily to all who investigate its advantages and economy.

Let Us Tell You More About It



MUCH LONGER LIFE WITH LESS EXPENSE

We make Belt Elevators, of course, as for many years, and can supply all requirements.

Send Us Your Specifications

The Webster M'f'g Company, Tiffin, Ohio

Chicago, McCormick Building

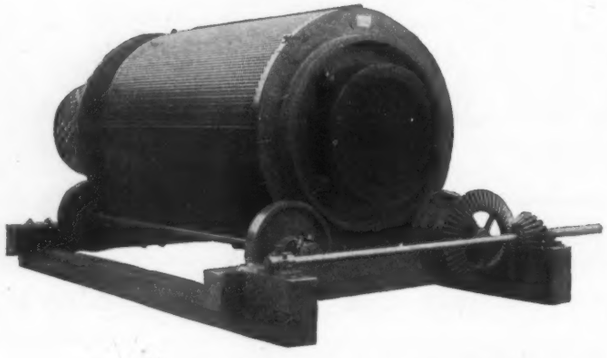
New York, 88-90 Reade Street

Pittsburgh, Pa.—Dempcy-Degener Co., - 14 Wood St.
Charleston, W. Va.—C. L. Miller, - 1511 Virginia St.
Detroit, Mich.—Palmer-Bee Co., - Woodward Ave.
Birmingham, Ala.—Carpenter & Hillman, - 707 Empire Building.
Denver, Colo.—C. L. Dean, - 1715 California Street
Douglas, Ariz.—L. V. Mendenhall, - 1019 Avenue G.

Los Angeles, Cal.—California Mchy. & Equip. Co. 921 N. Main St.
Seattle, Wash.—R. C. Brinkley, - 310 Jackson Street.
Salt Lake City, Utah—Utah Engineering & Machinery Co.
Vancouver, B. C.—B C. Equipment Co., Bank of Ottawa Building. 60

JOHNSTON & CHAPMAN CO., INC., 2927 Carroll Avenue CHICAGO

ARE THE SOLE MAKERS OF THE



Celebrated John O'Laughlin Screen,

the value of which has been demonstrated by many years of continuous service in **QUARRIES** of Limestone, Granite, Trap and other Rock. This machine is built to meet the requirements of Quarrymen, who want a durable practical machine for heavy work. Its construction renders it not only more effective in screening, but it is much shorter, stronger, easier-running, and less destructive of screen covers and bearings than the ordinary cylindrical screen. We will be glad to send to any address a circular explaining the merits of this screen. .

WE ARE ALSO PERFORATORS OF ALL SHEET METALS, AND MAKERS OF FLAT, CYLINDRICAL AND CONICAL PERFORATED SCREEN PLATES FOR QUARRIES, MINES, CEMENT MILLS, REDUCTION WORKS, AND ALL INDUSTRIAL PURPOSES. PLEASE FAVOR US WITH YOUR INQUIRIES FOR PERFORATED SCREEN PLATES FOR ANY MACHINE, OR ANY PURPOSE.

Remember the O'LAUGHLIN SCREENING MACHINE. It is a good one.

JOHNSTON & CHAPMAN CO., 2927 CARROLL AVENUE CHICAGO, ILLINOIS

OUR MOTTO—"QUALITY and SERVICE"

(Prices Always Right)

WIRE, MAIL OR PHONE ORDERS TO NEAREST MILL

The National Retarder Co.

SUCCESSORS TO

The Chemical Stucco Retarder Co.	The Ohio Retarder Co.	The Binns Stucco Retarder Co.
Webster City, Iowa	Port Clinton, Ohio	Uhrichsville, Ohio

MILLS AT

Webster City, Iowa **Port Clinton, Ohio**

Branch Office, Toledo, Ohio

CERESIT

WATERPROOFING

Every Building Material Dealer Should Handle

WATERPROOFING COMPOUND

It's Profitable Because

There's an excellent margin of profit in Ceresit.

Ceresit always gives your customers right results.

It builds up sales—and consequently profits—by giving right results.

It helps your reputation by giving right results.

It offers a mass of good substantial reasons which your salesmen can use.

It is advertised extensively and strongly in good sized space in all leading Engineering, Architectural, Contracting and Building papers.

We maintain a staff of expert waterproofing engineers to help solve any problems that you or your customers encounter.

We back you up in every possible way that our sales and your sales may increase.

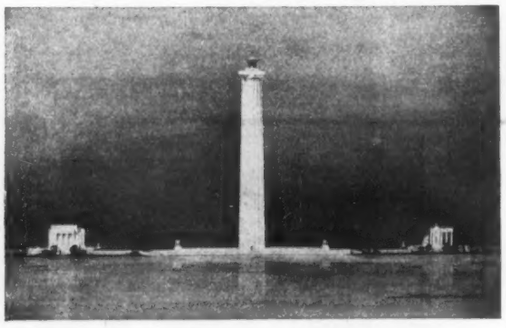
Get our liberal dealers' proposition.

Also ask for a copy of the March "Ceresit Waterproofer," a publication issued by us in a spirit of co-operation with our dealers.

Ceresit Waterproofing Company

924 Westminster Bldg., Chicago

FACTORIES—Chicago, Una, Germany, London, Paris, Vienna, Warsaw.



PERRY MEMORIAL, PUT-IN-BAY, OHIO

MEDUSA GRAY AND WHITE PORTLAND CEMENT

USED IN ITS CONSTRUCTION

Medusa is the first true white Portland cement ever manufactured, can be used for exterior as well as interior work, is perfectly white in color and stainless. It has been used by the U. S. Government in over 50 buildings in the past few years.

Write for free booklets and samples of

MEDUSA WHITE PORTLAND CEMENT

MEDUSA WATERPROOFING

MEDUSA WATERPROOFED CEMENTS
(GRAY AND WHITE)

SANDUSKY PORTLAND CEMENT CO.
SANDUSKY, OHIO

WHITE PORTLAND CEMENT — SANDUSKY PORTLAND CEMENT CO. — SANDUSKY, OHIO. — STAINLESS.

DIRECT HEAT

DRYERS

FOR

BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
68 William Street, NEW YORK CITY

DOHERTY-ELDRED LIME KILNS

Steel Incline and
Steel Industrial Limestone Cars

The Improved Equipment Co.

Executive and Sales Offices: 60 Wall St., New York

COMBUSTION ENGINEERS

Complete Lime Burning Plants
Lime Kilns
Complete Gas Plants
Gas Producers
Special Industrial Furnaces
Refractory Materials

BACON ↘ FARREL
ORE & ROCK
CRUSHING ↘ WORLD KNOWN
ROLLS-CRUSHERS
EARLE C. BACON, ENGINEER
HAVEMEYER BUILDING, NEW YORK

TRADE MARK — ROTARY.

WORRELL'S ROTARY DRIERS

(First Efficient Rotary Fire Driers Built)

DIRECT OR INDIRECT HEAT,
FOR SAND, CLAY, CRUSHED ROCK, GRAIN

and other granular or fiberous matter. High Efficiency, Durability and Simplicity.

IMPORTANT; In sending for prices and printed matter state your required hourly capacity, approximate % moisture in your product, etc. or mail pound sample in tin or glass.

S. E. WORRELL

Established 1879 — 209 Center St. — HANNIBAL, MO

Farnam "Cheshire" Lime Co.

OF CHESHIRE, MASS.

MANUFACTURERS OF THE

Celebrated Cheshire "Finishing" Lime

Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

HIGH GRADE FINISHING WORK

Selling Department, 39 Cortlandt St., N.Y., C. J. CURTIN, Pres't.

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MAR 26 1914

Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIII. **CHICAGO, MARCH 22, 1914.** **Number 10**

PUBLISHED SEMI-MONTHLY.
DEVOTED TO
Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialities—Fireproof Building and Road Construction.

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EDGAR H. DEFEBAUGH, Prest.
Seventh Floor, Ellsworth Bldg., 537 So. Dearborn St., Chicago, Ill., U. S. A.
Telephone: Harrison 8086, 8087 and 8088.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.
Editorial and advertising copy should reach this office at least five days preceeding publication date.

TERMS OF ANNUAL SUBSCRIPTION.
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Advertising rates furnished on application.

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Copyright, 1914, by E. H. Defebaugh.

Keep all the good resolutions you made at the association meeting right along in your business practice and it will pay you big dividends.

Few big buildings and heavy construction propositions have gotten under way, but there is very plentiful crop of medium and small-sized jobs. All signs of prosperity are good.

The dealer in builders' supplies, like the voter under our system, has the cure for all his worst troubles in his own hands. Think this over as a helpful suggestion and act accordingly.

Better living conditions can only be secured by better housing of the masses. This is actually the greatest economic problem of the times and the concrete industry has the answer in half dozen ways. Just spread this announcement.

Even like the snakes of Ireland, St. Patrick seems to have driven out the last vistage of winter, and the resplendent new painted wagons of the builders' supply dealers are twinkling about the streets with the first deliveries of the spring season.

In these days when obsolescence retires and scraps more high-priced machinery than wear and tear, the wide-awake manufacturer takes measures to get all the wear possible out of machinery investments by running at top notch speed. Full capacity is the only available economy in present-day methods.

Financial benefits received by members of building material dealers' associations are sufficiently large to pay the annual dues as well as the railroad fare and hotel bills expended while attending the various conventions. The far-seeing dealer has figured this out to his own satisfaction and as a result he is determined to attend the conventions of the various associations with which he is affiliated.

Concrete walk and street improvement has gotten to be quite as staple a commodity as tea and coffee, and even more indispensable. It has become part of the XX century civilization.

Every time a big holocaust occurs like the clubhouse fire in St. Louis there are plenty of people to call it a mysterious intervention of Divine Providence, quite inscrutable but nevertheless to be met with resignation. It is, in fact, quite another thing, chargeable to man's criminal carelessness and the architect's stupidity. It is just such casualties that call for the intervention of the law to force builders of such structures to properly protect them with fireproof concrete work. The cost of perfectly protected reinforced concrete construction in the case cited would amount to merely a bagatelle of the total cost of the disaster. All similar buildings, wherever located, are daily giving a dare to fate, with the certainty that it is only a matter of time until the fire gets a start.

During the next few weeks the road commissioners in many of the states will be elected. The choice of the actual road authorities will thus be made for very many localities throughout the country. Here and there a representative citizen may be elected, but if any one cares to look the matter up it will be found that, for the most part, the men running for road commissioners are being drawn from the political parasite class—not even taxpayers or householders in some cases. Yet they dispose of big sums of public money directed to important public improvements as they pretty please. Nearly always they please to pass around "plum" contracts and "juicy jobs" amongst the party gang. After the earnest and intelligent road meetings this makes a sorry prospect, and the worst of it is that this is the phase of the subject that counts most.

As a principal in business the coöperation of competitors is the much-to-be desired goal of all the association effort that is being put forth in every line of the industry. It is now pretty generally recognized that the intensified competition developed in American commerce during the last two or three decades has been the means of cheating our typical business men out of practically all the things in life worth while. Time was—and almost up to this moment—when the success of the man in business could be measured solely by the number of dollars accumulated; all the other essentials for the secure establishment of happiness were taken for granted. We are just waking up to the realization that the pursuit of happiness has little or nothing to do with the dollar chase, after all. Those most important factors which were presupposed for so many years have become dimmed by the rush and clamor of useless competition, so that having achieved the dollar we find it will only purchase discontent. Taking a broader view of the brotherhood of man and coöperating as such, the shock and wreck is dispensed with and there are still the same number of dollars which became incidental only to the main proposition of right living and the cultivation of the true higher civilization, in which the home and family relations, as well as the social and public duties of citizenship, are developed. With such surroundings and conditions the man of affairs really lives—and he is beginning to do just that. And he refuses more and more to be the mule or pack-horse for his competitive enterprises which, after all, are only the means to a necessary end. All the progress in this most important movement has come and is coming out of the trade associations. It is up to all the men with good intentions and high motives to get in line and do their part.

News About People and Things of Importance

With You and Me

Comments of Interest to the Trade

Joseph L. Hogue, who was for eight years city street commissioner of Indianapolis, Ind., prior to the present city administration, has accepted a position as general manager of the Central Gravel Co.

The Henry S. Spackman Engineering Co., inspecting and chemical engineers, announces the removal of its Philadelphia offices and laboratories to its new building, 2024 Arch street, Philadelphia.

R. L. Williams, of Graysville, Tenn., announces that the plant of the Graysville Crushed Limestone Co., which he controls, has resumed operations, and will furnish fertilizer material to lower East Tennessee. Mr. Williams is general manager.

Heppenstall & Marquis, Pittsburgh, Pa., have sent us a souvenir in the shape of a note book and bill book combined. There's a pocket for the bills, as well as a section for the money, so that the collector will have a place for both. Believe me, we have long needed the suggestion.

L. C. Stevens, superintendent and manager of the Evans Quarries Co. quarry, Hot Springs, S. D., expects to start East soon to investigate stone-working machinery, with the object in view of installing machinery at the quarry if it is found practicable to do so. This company reports a nice business during 1913 and prospects good for 1914 as they have a number of good contracts on hand.

Bernard L. McNulty, vice-president and general manager of the Lagarde Lime & Stone Company, Anniston, Ala., reports that his concern has enjoyed a good business during the past year. "Hydrated lime is growing in favor with the southern contractors," said Mr. McNulty, "and the dealers are taking to it. We have supplied the hydrate used to plaster the Ansley Hotel at Atlanta, Ga., also the lime used in the construction of the court house at Athens, Ga., and a number of important buildings where a superior product was needed."

GEO. S. BARTLETT, EDISON PORTLAND CEMENT CO., NEW YORK, N. Y.

I. L. Hirschman, of the Trus-Con Laboratories, Detroit, Mich., is now traveling abroad. He expects to return in September.

On this page is shown a splendid likeness of Benjamin O. Payne, the Vulcanite Portland Cement Co.'s salesman who covers southeastern New York state and western Connecticut in a Ford runabout. Mr. Payne is noted for his utter disregard of the speed law—when it comes to the distribution of Vulcanite Portland cement.

Harold M. Leh, of the H. M. Leh Co., 1519 Real Estate Trust Building, Philadelphia, Pa., dealers in waterproofing, including "Minwax," recently returned from a joint business and pleasure trip to Allentown, Pa., where he attended the wedding of a friend. At the office business was reported to be running smoothly, with every indication of continuing so throughout the remainder of the present period.

Henry S. Gray, of J. B. Speed & Co., was recently honored by being elected president of the Louisville Transportation Club, in which he has been active practically ever since its organization. Mr. Gray states that things have been somewhat slow with the company lately, in view of the general quiet in the building world, cement being very slow, as well as lime. Prospects are not regarded as good, nothing definite being in sight.

The county board of Kenosha county, Wis., has voted unanimously to demand the repeal of the Wisconsin law which provides state aid for highways, on the ground that the operation of the law has not been satisfactory in that county. The board asks that copies of its resolution be sent to all the counties of the state and that the other counties be asked to join in a state-wide movement to secure the repeal of the act. It is declared that the law has promoted extravagance.

Geo. S. Bartlett, one of the widest known as well as one of the most popular and able members of the Portland cement fraternity of the country, has been elected to the vice-presidency of the Edison Portland Cement Company. This will move Mr. Bartlett permanently down to New York. He has been living in Milwaukee for the past 25 years and has been connected with the cement industry ever since those days before his raven locks began to be streaked with gray as a result of the pleasures of all those winter seasons. Mr. Bartlett was born in New York and probably feels more at home in that locality than anywhere else, although there is no place beneath the sun where George Bartlett is not at home and a hail fellow well met. He has always been an active member because it is part of his nature, and in this new connection he will, without a doubt, show his usual speed. He tells some of the best stories about the early days of cement in the development of the Middle West that are available for those who have a fondness for little anecdotes and episodes of commercial life and he never fails to tell them with vivid point and forceful metaphor. His particular gift has always been that of leading sentiment, which causes the use of cement in places where it had never been used before. Hence he is quite as familiar with modern concrete construction as he was a few years ago with the production of hard masonry mortars and the smaller beginnings of the present great cement industry.

Members of the National Association of Building Owners and Managers are looking forward to their annual convention, which will be held on July 14, 15, 16, 17 in Duluth, Minn.

Fred Von Siebenthal, who was formerly with the Ten Broeck Tyre Co., Louisville, Ky., after several years with the Louisville Builders' Exchange, has been added to the sales force of Warren Brothers, of Louisville.

Recent reports on the condition of T. H. Lazenby, general manager of the Thomas Moulding Brick Co., of Chicago, who is in a sanitarium at El Paso, Texas, indicate that Mr. Lazenby's general condition is about the same as it was at last report.

Allen G. Ward is the new successor to the late Ed. Walton as manager of the Youngstown Ice Co., Youngstown, O., Ed. Holway continuing as treasurer. These gentlemen with their well-known ability in special lines will no doubt increase the volume of this business if it is possible after the loss of a great factor in commercial field like our dear old friend Ed. Walton was.

W. H. Ford, general sales manager of the Canada Cement Co., was a Chicago visitor on his way home to Montreal after his regular annual swing over the territory of the Dominion from coast to coast. He has been steadily traveling since November, and during that time has personally interviewed all of the leading dealers in the principal cities. This gives him that acquaintance with his trade that is recognized as personal magnetism.

The directory of Cement, Gypsum and Lime Manufacturers for 1914 has been issued and is now being circulated. This is the eighth edition of the little directory and in its compact form has been found extremely valuable to those interested in the subjects on which it treats. The price of the directory is $1.00, and it may be had by application to ROCK PRODUCTS AND BUILDING MATERIALS.

BENJAMIN O. PAYNE—HE USES A FORD AND SELLS VULCANITE CEMENT.

Safety First.

The St. Louis holocaust of the Missouri Athletic Club emphasizes in letters of blood the folly of using what is known as substantial buildings of the past and gone type for such purposes. The strong and heavy timbers of the wooden floor construction made very high-class fuel for the flames and demonstrated again that there is no way to protect wooden construction so as to make it "slow burning."

The only way to protect human life against such awful risk is to use materials for the entire construction which cannot be made to burn. Such materials are produced from our quarries and mines, and manufactured and fashioned so as to comply with every need of the builder. They are the cheapest materials known to man, and yet the politics of finance or commerce, or some other established but yet antiquated usage, comes up to prevent their specification in any degree commensurate with their merits.

In this case, when nearly half a hundred business men in powerful commercial connections lose their lives, some lively temporary agitation will result in favor of fireproof construction. Prominent engineers who are really quacks will recommend some hobby of construction, while others with earnest purpose will come outright in favor of reinforced concrete construction, the only kind that has no fire record yet. Other social and athletic clubs will take council with fireproofing experts, and adopt their recommendations at some cost or another; so the incident will soon pass into oblivion of those things not pleasant to remember. But another and endless reminders will recur from time to time, and each time it is "too bad, too bad."

All the boasted civilization of this Twentieth Century and its searchlights of intelligence don't really mean a great deal unless we use and apply the things that are developed and given freely to our benefit by studious and careful experts in concrete construction. After all the agitations subside and all the hobbies of the quacks are played out to a finish, there stands only one way to put up buildings in safety from fire, and that is by the route of reinforced concrete. It is always cheapest in the long run as well as in the first outlay, and the most important feature to every human being that comes in contact with it is taken care of in advance. Safety first, and after that any old thing that fancy may suggest.

The big club house, the large commercial building, and the city hotel will take care of themselves, because such structures are the targets for criticism, and will pay the investors better than any other way. But the housing of the masses in little flimsy firetraps as we have it in this country now, is the worst blot upon our advanced civilization. These can to the smallest and most unpretentious be built from that wonderful material, concrete, better, cheaper and best of all safer than any other way.

Just when concrete shall find its full recognition is not far off, and it means more to humanity than the invention of gunpowder, which made big and little ruffians take the same measure. If all the clans of our readers could find how to join hands under the banner of concrete, as we have so often set it forth in these columns, the whole solution of safety first would be quickly given to civilization.

Fireproof Style Is Not Expensive.

Fireproof buildings can be erected at a cost of not more than 15 per cent over nonfireproof construction.

At the present cost of building material, fireproof construction can be erected at a cost of not to exceed 10 or 15 per cent more than those nonfireproof, and when we consider that fireproof buildings deteriorate about one-ninth of one per cent a year as compared with the four per cent of ordinary buildings; that they rent better and that money can be borrowed on them on better terms; that they are vermin-proof, cooler in summer and warmer in winter, it would certainly seem a part of wisdom and self-interest to adopt a better method in every case when the building is to be of a permanent character.

The Builder's Poet

The Sacrifice

[Suggested by the burning of the Missouri Athletic Club, March 9, 1914. Thirty lives were lost.]

I

The bloody sacrifice of wanton war
Calls forth the cry that violence shall cease.
The toll of dead and wounded we abhor,
And yet ignore the sacrifice of Peace.

II

Mark well the fallen, where the curling flame
Beat back escape, and choked the anguished cry;
Bring Truth to search the records, fix the blame,
On those who left these helpless hordes to die.

III

In every city stands the charrèd shell
Of some great structure, lawfully secure,
And branded safe—yet in this blazing Hell
Brave men and women answered Death's red lure.

IV

How reads the law? Do not the statutes say
That thus and thus you shall and shall not do?
Wherefore these laws, if their evasion may
Be giv'n or bartered to the favored few?

V

If laws be lax, repeal and make anew,
If good, enforce, and let the slaughter cease;
Awakened conscience calls for us to do
Our duty—halt the sacrifice of Peace.

—Frank Adams Mitchell.

W. M. BURCHFIELD, ROCHESTER COMPOSITE BRICK CO., ROCHESTER, N. Y.

If one-half of the money spent in American cities for fire losses was spent for better building construction, the annual loss by fire would soon begin to decrease. Improvements along the line of better construction can only come gradually. It can and should be hastened in thickly settled communities by stringent building laws. City officials should be awakened to their responsibilities and the individual shown that his own pecuniary interest lies in lessening the fire waste. Old buildings cannot be torn down at once and rebuilt, but we can see to it that no more fire traps shall be built where they are a menace to other structures.

W. M. Burchfield, general manager of the Rochester Composite Brick Company, Rochester, N. Y., is very optimistic of conditions in the sand-lime brick field for the year 1914. Mr. Burchfield states that out of an increase of over 6,000,000 sand-lime brick manufactured in the state of New York in 1912, his concern furnished 4,500,000, or about 75 per cent. He believes that had financial conditions of 1913 been as good as 1912, the Rochester Composite Brick Company would have turned out at least 15,000,000. However, the production was as large as the previous year. In the city of Rochester sand-lime brick is meeting with the approval of all the leading architects and contractors, who are rapidly learning of its qualities and the great number of uses to which it may be put.

The firm of Wallschlager & Wagner has been organized at Ripon, Wis., to engage in concrete construction work and to operate a sand and gravel business.

CEMENT

The Sack Morgue.

One of the most interesting features of the Universal Portland Cement Co.'s exhibit at the recent Chicago Cement Show was the "sack morgue," depicting the vicissitudes encountered by the cement sacks after they leave the cement manufacturer until they are overturned to the mill. While the majority of those who attended the Seventh Chicago Cement Show took the opportunity to visit the Universal booths and inspect the sack morgue at close range, yet for the benefit of the dealers who did not have a chance to see this particular exhibit an engraving of the morgue is shown on this page. The following brief description will enable our readers to get an idea of what it was like:

Placed in separate coffins are the various "dying" stages of a cement sack, due to rough usage, etc., and standing as a mute appeal to be more careful with the empty sack. Each of the cement sacks lies in its little coffin, and over each there is a "tombstone" telling by what violent means it met its death. The captions over each tombstone are given below, and they will repay careful study, because it may be that some of your sacks are being slaughtered in the same way as were the unfortunate victims shown in the illustration.

The Universal Portland Cement Co. is conducting a campaign of education among the builders' supply men with the idea of inducing them to preserve their cement sacks and receive full credit for the return of same. The sack morgue is now being exhibited at the Builders and Traders' Exchange in the Chamber of Commerce building, Chicago, and the supply men are flocking to see it. The exhibit will go to Minneapolis April 1, where it will remain for two weeks, and then go to St. Paul for a similar period, after which it is planned to send the exhibit to Pittsburgh for a time.

The general offices of the Universal Portland Cement Co. are located at 72 West Adams street, Chicago, Ill., but the company expects to move into new quarters in the new Continental and Commercial National Bank building, Adams and La Salle streets, about May 1.

1. **Died** a shameful death trying to save a few cents' worth of concrete from freezing.
2. **An Old Soak,** who was killed while trying to protect 12 cents' worth of cement sidewalk from sunstroke.
3. **A Martyr to Carelessness.** He was accidentally soaked by a hose and died hard.
4. **Flood Victims** killed by a driving rain after being refused shelter in the sack shed.
5. **The Doctor** sewed him up in the wrong place. His usefulness past, he died.
6. **The Ghastly Work** of an incompetent surgeon.
7. **Sloppy Surgery.** With this vital valve sewed up he could not survive.
8. **A Doctor's Mistake.** Glue was not the proper remedy for his complaint.
9. **They Cut His Throat** to rob him of the cement he would have been glad to give.
10. **Stabbed** to the heart by a murderous workman, who took by force what he might have obtained peacefully.
11. **Poisoned** by a dose of mortar color.
12. **He got full** of wet sand, which caused decay and death.

Louisville Cement Notes.

Louisville, Ky., March 20.—After a shutdown of several weeks, the Kosmos Portland Cement Co. has resumed work with a full force, and is now making deliveries on a number of large jobs for which it is furnishing the cement. A recent order was for 20,000 barrels for work being done by the Illinois Central Railroad at Fulton, Ky. The company is also furnishing cement to the amount of about 1,000 barrels for the Louisville & Nashville viaduct at Winchester, Ky., and orders from the smaller dealers all over Kentucky and further south aggregate a considerable quantity of cement. In Louisville the company is furnishing all of the cement used by the Lock-Joint Pipe Co., which is making the reinforced concrete pipe used on the sewer work being done by the Henry Bickel Co. Sales Manager C. M. Timmons returned this week from a trip on business to West Virginia. President Samuel Homer, Jr., of Philadelphia, was in Louisville this week for several days, visiting the plant.

J. B. Speed & Co. has begun deliveries on the Beargrass Creek concrete job, which will require about 20,000 barrels, and which has been held up for some weeks by bad weather, including a good deal of rain and snow which made it impossible to work in the bed of the creek, and some freezing. Work is beginning, however, and will probably progress now with considerable speed, unless there is a good deal of heavy rain. Henry S. Gray, secretary and treasurer of the company, recently elected president of the Transportation Club of Louisville, has appointed the standing committees of the organization, which is among those which favor a plan proposed to enable the railroads to use Main street. The Speed company, among other large concerns, would be benefited if trackage were available, and the proposal of the Louisville Tobacco Warehouse Co. for the construction of industrial tracks on that street, for limited use, has been well received.

Cement Consumption Falls Off in February.

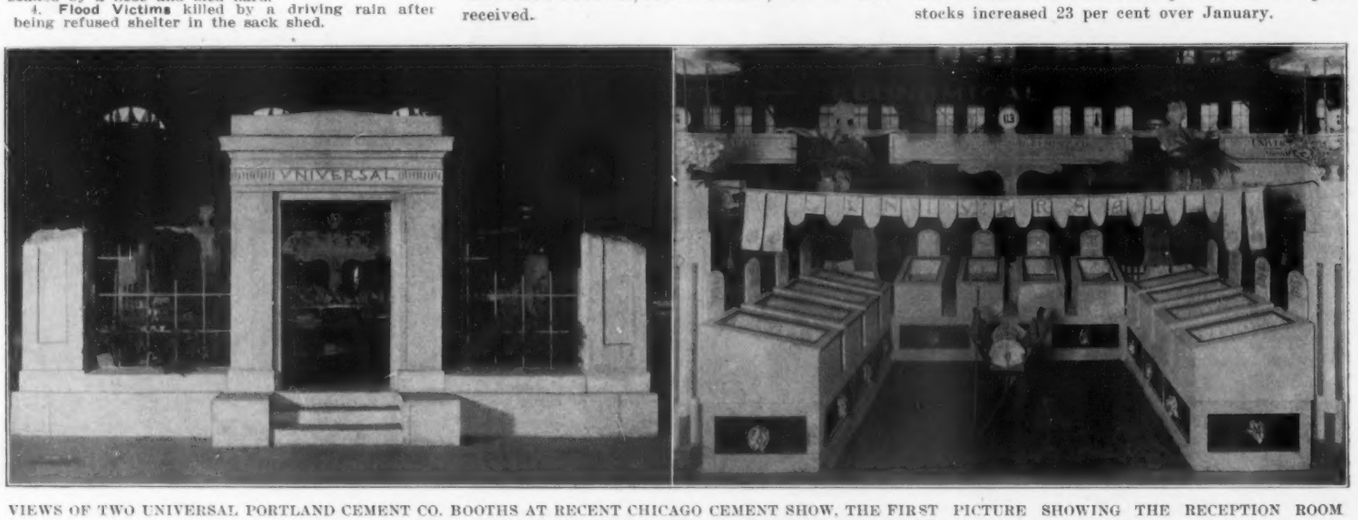
Heavy Decrease in Demand Was Due to Slump in Building Operations.

Philadelphia, March 13.—The production of Portland cement in the United States in February exceeded the consumption as measured by shipments from the mills by almost 50 per cent and this was in spite of a curtailment of nearly 9 per cent in output compared with the corresponding month a year ago. As a result of this slackening demand the surplus stocks of cement in the hands of producers on February 28 were the largest in several years, exceeding 12,000,000 barrels, an increase of approximately 11 per cent over January and 20 per cent larger than at the end of February last year.

Statistics compiled for trade uses are understood to show the February production at about 4,500,000 barrels, while shipments were only 3,000,000 barrels. The latter compares with 3,300,000 barrels a year ago. In January the production was about 4,000,000 barrels and shipments 3,000,000, making the output for two months 8,500,000 barrels and the shipments 6,000,000 barrels. Compared with last year, the two months production was 15 per cent less and shipments 7 per cent less than a year ago.

Trade interests here explain the heavy decrease in demand last month partly to the slump in building, as indicated by construction figures for the principal cities, and partly to bad weather interfering with shipments. An encouraging fact is that, notwithstanding the exceptionally large surplus stocks, equal to more than one-eighth an entire year's output such as last year's, when it was 92,406,000 barrels, prices are being well maintained. There has been some serious price-cutting in the South, but virtually no change elsewhere. Manufacturers prefer to curtail output rather than lower prices to unprofitable levels. The February production was on a scale of only 55,000,000 barrels per annum, but as shipments were only at the rate of 36,000,000 barrels per annum, there will have to be further curtailment if orders do not increase.

The mills in the Lehigh district, which produce nearly one-third of the cement used in the United States, fared even worse than those in other sections of the country, shipments in February dropping almost 30 per cent from last year, while production was reduced about 5 per cent and surplus stocks increased 23 per cent over January.



VIEWS OF TWO UNIVERSAL PORTLAND CEMENT CO. BOOTHS AT RECENT CHICAGO CEMENT SHOW, THE FIRST PICTURE SHOWING THE RECEPTION ROOM THE SECOND ILLUSTRATES THE FAMOUS "SACK MORGUE."

Regarding the Overloaded Cement Sack.

The decrease in the use of paper sacks for the delivery of cement undoubtedly is due to overloading and overtaxing the strength of the present paper package, which will not stand either the rough handling in and out of the warehouse, nor the hard knocks, bumps and thumps received in transit and in switch yards. The major portion of this trouble might be overcome if the cement manufacturer could satisfactorily arrange to pack and ship cement in one-fifth barrel paper sacks of 76 pounds each, instead of 95 pounds.

It is difficult for any one cement manufacturer to take the initiative, because close competition compels extreme caution in changing established custom, though practically every manufacturer will agree that a single service container is the ideal method of delivery, if it can be used safely and economically. The fifth-barrel paper sack would solve the problem, because it is the extra 15 to 20 pounds that overtaxes any paper package, but the demand for such a package must come from the dealer and contractor.

The bag makers might create this demand, by convincing the cement-consuming trade of the advantages of the lighter weight package. This can possibly be done by personal interviews with contractors and dealers, who as a rule are quick to adopt any improved method in handling building material. To them it will mean quicker, easier and safer handling. It will relieve the cement manufacturers largely of a most annoying part of their business and they will doubtless be willing to adopt some such method, if the trade desires it. To the manufacturers of heavy paper bags, it should prove beneficial by the general increased demand for single service paper containers.

If this proposed change will benefit all concerned, would it not be well for the paper bag manufacturer to formulate plans as to the best method to educate the cement-consuming trade regarding the advantages that must accrue from this seemingly slight change in delivery? And, as the benefits, if any, must fall to all alike, is there any reason why the subject could not be taken up coöperatively by all interests?

The Kosmos Cement Co., West Point, Ky., after a shut-down of several weeks, resumed work March 6, with a full force.

The Edison cement plant at New Village, N. J., in which a large number of Washington residents are employed, will resume operations March 9.

The Lehigh Portland cement mills at Mitchell, Ind., have been ordered closed down indefinitely. The order came from the company headquarters and it is only guesswork at the plant as to when they will reopen, though it is thought it will be early in April.

The first annual report of the Giant Portland Cement Co., for eight months of operation from May 1 to Dec. 31, 1913, shows: Total receipts, $691,595; manufacturing and operating expenses and taxes, $598,551; net, $93,043; bonded interest, $30,000; surplus, $63,043.

Beginning Jan. 1, 1914, the Charles Warner Co., Wilmington, Del., discontinued the sale of Nazareth cement in Wilmington, Delaware, Maryland and Virginia districts. This company will sell Bath Portland cement, produced by the Bath Portland Cement Co. The Bath plant is at Bath, Pa.

Final papers in the sheriff's sale of the property of the Bonner Brand Portland Cement Co. at Bonner Springs, Kas., to the Banking Trust Co., of Kansas City, Kas., as trustee, were filed in the Wyandotte county district court recently by Sheriff R. L. Hinch. The sale price was $95,016.81. The mortgage held by the trust company was considerably in excess of that sum. It is understood an effort will be made to reorganize the company.

A COMMENDABLE GIFT.

The Marquette Cement Manufacturing Co.'s proposition to build at its own expense a modern concrete road up Shippingsport hill was unanimously accepted by the board of supervisors of La Salle county, Illinois, Saturday, March 14.

This company proposed to cut down the present steep grade of 12 per cent very materially, which will necessitate the moving of many thousands of yards of dirt. The full width of the road will be concreted from the Shippingsport bridge up the hill to a point opposite the Conway farm. Approximately one mile of concrete will be put in.

This work will be done free of all cost to the state, county or township, the Marquette Co., Chicago, Ill., bearing the entire expense of grading, labor and all materials. The improvement will entail an expenditure by this company of upwards of $14,000 to $15,000. This pavement will connect with the concrete boulevard known as the La Salle-Oglesby Concrete Highway. It will be remembered that the Marquette company bore a large portion of the expense when this road was concreted last summer.

The grade on the Shippingsport hill at the present time is very steep and the condition of the roadbed makes it almost impassable for vehicles. As this is a very heavily traveled road, this generous donation will be greatly appreciated by the community as a whole, and the Marquette company is to be highly commended for its public spirit.

WOULD LESSEN WEIGHT OF BAG OF CEMENT.

Several manufacturers of cement have expressed an opinion that an 80-pound bag would be the practical size for both cloth and paper; that the unit of weight could be established for a 400-pound barrel, five sacks to the barrel or twenty-five sacks to the ton. The proportions or divisions by sacks would then be simple and logical.

This would relieve the overstrain on the present 95-pound paper package and on all handlers of the present 95-pound bags of cement; would largely obviate the annoyance of the breakage of the paper package; would lengthen the life of the cloth sacks, and also aid the packing house crew to become more efficient and better contented, their work being quickened by relieving them of 15 pounds on each package. This will not overstrain their muscles or exhaust their energy; they can return to work each day refreshed, because they can rest over night from a hard day's work, when not overburdened.

This thought is given for its worth, the main object being to strike a happy medium of weight per bag that will render the best service with the least annoyance to the manufacturer, dealer and consumer.

CEMENT RATES SUSPENDED.

Advances in the rates on cement in carloads and other commodities from Mitchell, Ind., to Memphis, Tenn., New Orleans, La., and other points were today suspended by the Interstate Commerce Commission from February 26 until June 25. The advances were proposed in freight tariffs filed by Eugene Morris, agent for the railroads, and would have advanced the present rates about 2 cents per 100 pounds.

CANADA CEMENT.

It was brought out at the annual meeting of the Canada Cement Company, held recently in Montreal, over which Senator Edwards presided, that the company had cement on hand of about equal value to bank loans amounting to $1,628,818, and when this was disposed of in the spring, these debts would be liquidated. Judging by the progress made last year, J. M. Kilbourn, the vice-president, stated that he hoped in the near future the company would be able to pay dividends on the common stock. Frank P. Jones, the general manager, speaking on the outlook for the present year, said that in the middle of February this year's sales were 27 per cent behind one year ago, but he expected a big revival of trade shortly. The company's output last year amounted to 8,913,000 barrels, an increase of 5 per cent over 1912 and 100 per cent over 1909. Mr. E. W. Cox succeeded his father, the late Senator Cox, to the directorate.

CALIFORNIA CEMENT ITEMS.

San Francisco, Calif., March 18.—The California cement mills are now running in good shape and are making large deliveries to many points which have taken little material for some months past. Many large contracts have already been booked for later delivery, and the outlook for additional business is encouraging.

At the recent meeting of the Pacific Portland Cement Company in San Francisco, the following directors were elected: Frank G. Drum, R. D. Robbins, Alexander Hamilton, Fred Reis, Jr., W. F. Detert, John D. McKee and John D. Sutton. Frank G. Drum was elected president to succeed the late Wakefield Baker, with R. D. Robbins as vice president; F. W. Erlin, secretary, and R. B. Henderson, treasurer and general manager. The annual report showed a prosperous year for 1913.

SECURITY IN NEW OFFICES.

Always working towards greater efficiency in service, the Security Cement & Lime Company have remodeled a large building on West Washington street, Hagerstown, Md., and removed their general offices thereto on March 1.

Since establishment of headquarters in close proximity to their plants, increase in business, especially from local territory, has been most gratifying, and made necessary additional facilities for its proper care and attention.

The new offices are located on two floors; sales and auditing departments on first floor; executive, mailing and filing departments on floor above, with greatly increased space for each division of the organization.

The Hunt Engineering Company is building a cement mill with a daily capacity of about 500 bbls. at Grants Pass, Ore.

The Diamond Lime & Cement Company has been incorporated in San Francisco, with a capital stock of $10,000, by I. K. Reinfeld, C. Burkheim and T. A. McGinn.

The Riverside Portland Cement Company, Riverside, Cal., is opening a new limerock quarry on its land and is putting in an electric shovel, etc., with a new heavy locomotive.

The Old Mission Portland Cement Company has filed a cancellation of a trust deed of property in Santa Clara, Santa Cruz and San Benito counties, Cal., formerly given the Anglo California Trust Company to secure a bonded indebtedness of $500,000. A new trust deed to secure a bonded indebtedness of $750,000 was simultaneously recorded.

CONCRETE

Concrete Poles Withstand Storm.

The extreme strength of the reinforced concrete telegraph pole has been demonstrated upon more than one occasion during violent storms, to which poles of the wooden type readily succumb. The most severe test ever inflicted upon them occurred during a recent blizzard, from which they emerged intact. Perhaps the most striking example of their extreme durability as exemplified in this storm was in the case of the telegraph line of the Pennsylvania Railroad Co., where a large number of reinforced concrete telegraph poles were exposed to the storm which swept over the Hackensack meadows in the vicinity of the west entrance of the Pennsylvania tunnels leading into New York City. The company had erected many of these poles in recognition of their durable and storm-proof properties. As is well known, the storm center was in and about New York City, and so violent was the wind, which reached a velocity of 70 to 80 miles an hour, and so great the accumulation of snow and ice, that New York was practically isolated for a time, at least so far as above-ground telegraphic communication with Philadelphia was concerned. The company's telegraph line was out of commission for a long time and many of the wooden poles were broken down by the wind and their burden of snow and ice. In no case, however, did a reinforced concrete pole collapse. So severe was the stress that the wooden cross-arms upon some of these poles were broken, but the poles themselves remained intact. The absence of telegraphic communication cost the company many thousands of dollars, as trains were stalled and in some instances completely lost during the height of the storm. There was no way for the company to get into communication with the crews. It has been stated that had the entire line been constructed of reinforced concrete poles it would have saved the company a tremendous loss.

This is the record of reinforced concrete poles wherever they have been used. These poles are made of Portland cement concrete reinforced with steel rods to take care of tensile strains, and as concrete improves with age and exposure to the elements, the poles are constantly gaining in strength and durability. As stated above, they are not only time-proof, but keep in far better alignment than poles of the customary type. They do not rot as do wooden poles and never rust as is the case with steel poles. At the present high price of timber, concrete poles are not prohibitive in first cost, and considered as a long time investment they are extremely economical. The Pennsylvania and other railroad companies are establishing their own manufacturing plants and it is likely that the next few years will witness a marked increase in the installation of concrete poles on all important lines.

Building Concrete Bridges.

Five concrete bridges of the latest improved type are to be built in Harvey county, Kansas, soon, under the direction of the state highway engineer, W. S. Gearhart, of the Kansas Agricultural College. Wood floor bridges are not popular in Harvey county and the board is replacing them as fast as possible with modern concrete structures.

"Fifteen concrete bridges already have been completed in Harvey county under our supervision," said Mr. Gearhart recently, "and they have the plans for five more. At Halstead we have just arranged for a 150-foot concrete bridge over the Little Arkansas which will cost $13,500. Many of the wood bridges in Harvey county were from 150 to 300 feet long when a concrete bridge of one-third that length would have been large enough. The taxpayers have been saved many dollars through our efforts, not only in cutting down the length of the bridges, but by direct supervision of the construction work." The commissioners of Harvey county are C. M. Anderson, C. J. Baer and F. F. Barrows; and these commissioners are giving individual service, adding greatly to the efficiency of the work.

* * * *

The replacing with reinforced concrete structures some of the wornout steel bridges in Knoxville, Tenn., will be taken up by Commissioner John W. Flenniken during the year. He will have J. Boyd McCalla, city engineer, make a report estimating the cost of replacing the bridge on West Main avenue across Second creek, together with other smaller structures.

During last year Commissioner Flenniken had erected across First creek at Sixth avenue a reinforced concrete bridge at a cost of $800. This is said to be the best value in a bridge for the money expended ever erected in Knoxville.

Commissioner Flenniken says that he can save the city of Knoxville several hundred dollars by having the city construct these bridges. Under contract the city paid $2,000 for the erection of the concrete bridge over the creek at Vine avenue.

Several of the iron bridges in the city are getting in poor condition. By replacing these bridges, said Commissioner Flenniken, with reinforced concrete structures, there is no repairing to do, no painting, and the bridge is there almost permanently with no cost except the original cost of construction.

Ligno Concrete—A Discussion of Experiments

BY J. F. SPRINGER.

A proposal has been made in England which may well merit investigation. It has been proposed that for certain uses of concrete, wooden reinforcement be employed. It is not suggested that this type of reinforced concrete should be used indiscriminately wherever steel reinforced concrete has been advantageously employed. Not at all. Nor is it suggested that any and all kinds of wood be covered with concrete, and the product regarded as reliable. No doubt, the use of any and all kinds of wood might be expected to lead to ridiculous results.

There are several matters to take into consideration, just as is the case with metal reinforcement. One reason for the notable success of steel is the fact that when heated and cooled, concrete and steel expand and contract at about the same rate, the result being that they do not pull apart under the powerful strains induced by weather and other changes. A similar consideration has to be kept in mind in relation to ligno-concrete. Again, the question of adhesion or its equivalent has to be taken into account. Concrete sticks to steel and this is one reason that the two are adaptable to each other. However, it may be possible to substitute something else for plain adhesion. As the main purpose for using reinforcement is to supply tensile strength in which mass concrete is lacking, the adhesion of the two together may be found to be non-essential. That is, if the wood may be so disposed and arranged that it takes the tensile strains and stresses whether there is good adhesion or not, then it would seem that ligno-concrete is to be considered as possible in all such cases—unless, of course, it is ruled out because of other considerations than tensile strength. Further, with concrete and steel, the concrete operates as a protective covering guarding the inclosed steel from the effects of the alternations of dry and wet and also from the effects of fire. Just how ligno-concrete may behave under weather changes and in the presence of excessive heat are of course proper matters for consideration. Let us judge, but do not let us condemn in advance.

Mr. Gerald O. Case has made a considerable number of experiments in connection with ligno-concrete. He points out first of all that it has been quite customary to inclose timber piles in a concrete covering for the double purpose of retarding decay and guarding against the teredo and other wood boring forms of life. Then it has been found possible to attain success in the construction of wharves by the use of rows of hardwood piles inclosed in a concrete wall. Now it may be that the measure of success attained in these procedures has not been phenomenal. It is also possible that the success may be increased by a proper study of the underlying conditions.

Mr. Case tried a number of experiments where a rod of wood was imbedded in a covering of concrete and also of neat cement. In general, it may be said that where the rod was dry, the result was a cracking of the concrete. This occurred within three days. Quite a variety of kinds of wood were employed, and the only cases where splitting did not occur were those in which the wood was teak. And this material could not always be depended upon not to split the concrete. We thus get a negative rule: Dry wood should not be employed as reinforcement. Experiments were tried with water-soaked wood. Thus, a small rod, ½x½ inches in section, was immersed in water for two days. It was then found to have absorbed 0.0297 lb. of water per cubic inches. This rod was covered with concrete until the whole cross-section was 2x2 inches. In about three days, a slight crack developed in the concrete. Then a similar rod from the same plank was soaked until the absorption amounted to 0.0310 lb. of water per cubic inch. This rod was covered, as was its predecessor, with a concrete covering until the cross-section was 2x2 inches, and kept for 28 days. No cracks developed. Again, a smaller rod, 0.4x0.4 inch in section, was soaked until the absorption amounted to only 0.0292 lb. per cubic inch and then imbedded in a concrete covering until the cross-section was 2x2 inches. When 15 days had elapsed, no cracks were found. The last two experiments suggest that if the wood be sufficiently soaked, the concrete will not be cracked. This result, if generally true, is probably of considerable importance. The kind of wood employed was pitch pine.

The question of adhesion was dealt with by experiment. A concrete block, 12x12x8 inches, was prepared with four 1x1x4 inch rods of deal imbedded in it. These roads had previously been soaked for two days. Fifteen months later, the block was broken open in such way as to expose the rods, which were then driven through by means of a hammer. Considerable force was required and patches of wood were detached in the process and left adhering to the concrete. When wood is soaked before being used as reinforcement, there will be subsequent contraction when it is imbedded in the concrete. However, the concrete also contracts. Mr. Case thinks it is probable that the concrete contraction is sufficient to balance that of the soaked wood. If so, the grip would continue.

Just how long to soak the wood which is to play the part of reinforcement is probably a rather complicated question, if we wish to stop just as soon as we have carried it to the point where it is adapted to be used without danger of cracking the concrete. On the other hand, if we desire to soak the wood until no more water will be absorbed, the length of time required will vary with the wood. Thus yellow deal, in the form of 1.5x1.5 inch rod, ceased to absorb after 30 days immersion, but oak and ash in rods of the same size were still absorbing water

after the lapse of 200 days. These experiments are interpreted as pointing to the inadvisability of using porus concrete along with wood.

From the foregoing, we may tentatively draw the following general conclusions. Concrete may be successfully reinforced with wood, if sufficient care is taken in pre-soaking the latter. Also, the adhesion between concrete and wood will not be very seriously affected by the pre-soaking.

As to the preservation of the wood reinforcement. An old prison in Chatham, England, had partially imbedded in its concrete foundations a number of yellow deal leveling stumps, 2x2 inches in section. Those parts of the stumps which were in the concrete were found to be in a perfect state of preservation when the prison was torn down some time ago. The parts in the ground had rotted away. Again, a number of concrete blocks in which oak posts, 4x4 inches in section, were in part incased were removed after having stood on the shore between Brighton and Rottingdean, England, for more than ten years. The parts of the posts above the concrete were eaten and rotted—about one-fifth of the volume having been thus destroyed. But, upon "breaking up the blocks the parts of the posts which were imbedded in the concrete were, as far as could be seen, in a perfect state of preservation." There is reason then to expect that with proper conditions, wood may be preserved by concrete. There is probably a good deal of information bearing on this matter scattered here and there over the world.

As to fire protection. One should not expect anything unreasonable. The concrete is not going to make the wood inconsumable. It may be expected, however, to serve as a mild protection. The question is not, will the best ligno-concrete equal the best steel-concrete? No one should expect that. But we are using wood in many situations, and we may often find it desirable to have that wood mildly protected against fire.

Some few experiments have been tried with ligno-concrete beams. The reinforcement consisted of wooden rods, ¾x¾ inches in section, arranged longitudinally near the corners of the concrete beam, which was 4.5x4.5 inches in section. The lengths of the beams were 55 inches. All but one of the reinforcing groups of longitudinal rods were bound with steel bands, ½x⅛ inches in section; the remaining one, by wooden strips, 7/16x¾ inches in section. In some of the latter cases, some nails were driven partly in—a quarter of an inch being allowed to project. The concrete employed was not the same throughout. In certain cases, the aggregate consisted of granite chips; in the others, of fine beach pebbles. The formula for both was 1:2:2. In testing, the beams were centrally loaded with a span of 42 inches. The beams were all tested to destruction. The best beam required a load of 3,300 pounds before it gave way to the strain. However, the first crack occurred with a load of 850 pounds. The next best beam broke under a load of 3,150 pounds, a crack appearing when the load was 1,050 pounds. Both these beams were of beach concrete. A solid beam without reinforcement of the same concrete broke under a load of 425 pounds.

The third best beam broke at 2,500, but withstood loading without cracking up to 1,400 pounds. Four others broke under loads ranging from 2,250 down to 1,595 pounds. All five of these beams were of granite concrete. An unreinforced beam of the same material broke with a load of 650 pounds—it was, however, only 10 days old. It may be added that all of the wooden reinforcement was soaked before use except that made of teak.

It would seem from these experiments, incomplete though they may be, that the wood and the concrete did mutually support and sustain each other.

Certain other experiments were tried where the beams were not all tested to destruction. Two methods of placing the reinforcement were employed. The results are perhaps inconclusive. The reinforcement seems to have slipped under the movements induced by the loads. It can scarcely be said, therefore, that the principles of ligno-concrete construction have been thoroughly ascertained as yet. However, we should not be surprised at this. A good deal of uncertainty hung over steel concrete for a time and indeed still hangs over certain features. It is too much to expect that one or a couple of men would in the course of a limited number of experiments be able to quickly solve all the problems.

Looking at the matter by and large, we may conclude that ligno-concrete may have real possibilities. Not for everything for which steel concrete is employed, but for certain definite things. It seems that we have here a subject well deserving of serious consideration and investigation.

J. W. Kelly Concrete Company, Dixon, Ill., incorporated; capital, $20,000; to manufacture and handle concrete products; incorporators, John W. Kelly, Lawrence J. Kelly, John S. Kelly, E. C. Campbell.

A factory for the production of tile sewer pipe, brick, blocks and other concrete products probably will be established near Lafayette, Ind. The deal was transacted by Charles F. Hunt, president of the company.

Judge Mayer has appointed Robert S. Conklin receiver for the Stanley Golliek Co., New York, N. Y., concrete construction, of 30 Church street, bond $5,000, to preserve the property until a trustee is elected. The liabilities are $145,880 and nominal assets $82,700.

The National Concrete Stone Co. has invested $50,000 in a plant on a triangular site at Twelfth street, Brown avenue and the Terminal railway, Detroit, Mich. Building will commence at once and a plant turning out 2,000 blocks a day will be in operation in 30 days.

The business of the Cement Products Mfg. Co., Battle Creek, Mich., has outgrown its present factory accommodations and O. H. Gale, E. C. Gale and Frank H. Darrow, directors of the company, are considering the advisability of locating the plant at Albion, Mich.

R. C. Stanley, manager of the Stanley Reinforced Concrete Co., Centralia, Wash., advises that his concern is building a new plant in the south end of that city. The company recently sold a large quantity of concrete culvert to contractors, also a considerable amount for use in the municipal gravity water system of Centralia.

One of the biggest concrete bridges in the state of South Dakota is being erected by the Milwaukee railroad two miles west of Big Stone City on the line of the cutoff. This viaduct is 280 feet long, has an arch of 40 feet and a width of 32 feet to accommodate double tracks. The span is made in two arches across Whetstone creek.

Judge Mayer has appointed Charles F. Varney, of Newark, ancillary receiver for property in this city of the Clydeford Construction Co., installer of fireproof flooring, 419 Malbone street, West Hoboken, bond $1,500. Mr. Varney had previously been appointed receiver in New Jersey. The liabilities are $10,000 and actual assets $3,000.

Arthur J. Fournie, proprietor of the Swansea Artificial Stone Works, Belleville, Ill., is finding a ready market for the products of his plant. He manufactures all kinds of concrete building stone, drain tile, fence posts, walk blocks, grave boxes, hitching posts, well tops, stock troughs, porch columns, and all ornamental concrete work, making a specialty of white porches and retaining walls.

The Gas Engine For Mixing Cement.

By Clarence E. Bement.

(Secretary and Manager of the Novo Engine Company.)

The advent of the automobile has done for the stationary gasoline engine more than all the previous years of demonstration had accomplished. It showed the most skeptical that the gasoline engine was a positive, reliable and dependable power for every purpose within the range of its capacity, and that range is being extended every day.

Mixing Is Intermittent.

The mixing of concrete on the ordinary job is an intermittent proposition. The concrete is poured for a few hours into a set of forms, and then the mixer is not used again until another set of forms is ready. It is manifestly an advantage to be able to shut down a gasoline engine without waste of power or any attention required until the mixer is again put into operation.

Not Injured by Cement.

The gas engine is provided with a steel house and cement cannot be blown into the working parts.

A gas engine can be used in any state without any state laws regulating its construction. A licensed engineer is not, as a rule, required to operate it.

Fuel for gasoline engines is sufficiently uniform throughout the whole country to give satisfactory results, and in these days of automobiles and small engines for farm purposes, nearly every crossroads grocery has a gasoline supply. A gasoline engine will operate efficiently anywhere.

Troubles Are Simple.

Gasoline engine troubles in these days are simple, easily repaired by the ordinary workman, and are not expensive.

In water pumping the gasoline engine is rapidly proving its value in economy of operation, portability and efficiency, because it does not require a skilled operator, has an easily portable fuel to be found everywhere, represents a small investment for the work to be performed, occupies a small space, and is a self-contained unit not requiring any attention except to keep it supplied with fuel. The gasoline water pumping outfit can be taken to the water wherever it may be and can be left to take care of itself as long as the gasoline holds out. It cannot explode or set fire to anything. The smaller gasoline engine units have enabled power to be applied to all sorts of small machines.

Modern Engines Light.

When the gasoline engine first came into the commercial field it was thought necessary to make it heavy and cumbersome to stand the strain of the internal combustion and to hold it in position. This idea has been exploded, and the later models of gasoline engines have been designed with all the surplus metal cut out, making them more easily portable without sacrificing their efficiency and durability; so, too, the old type of gasoline engine had to be drained of its cooling water in cold weather to prevent the freezing up and bursting of the cooling water jacket. This has been done away with in the modern tub-cooled engine, in which the water may be allowed to freeze up without danger of bursting the jacket.

The substitution of the spark plug and jump-spark ignition has simplified the gasoline engine to a wonderful degree over the old style make and break ignition with its complicated mechanism, repairs for which could be obtained only from the original maker, whereas the spark plug and its attachments can be bought at every garage and many hardware stores.

Altogether the gasoline engine is in the power field to stay, and is daily extending the limits of its domain.

LIME

The XX Century Form of Lime

BY E. W. LAZELL.

Member American Society of Mechanical Engineers. Member American Institute of Chemical Engineers.

The use of lime as binding material for mortar originated in the remote past. It is probable that some savages when using stone composed of lime-rock, to confine their fire, noticed that the stones were changed by the action of the heat. A passing shower may have slacked the lime to a paste, and the discovery was made that the paste was smooth and sticky, and was a better material than clay to fill up the holes and crevices in their crude dwellings. From the discovery of the fact that lime slacked with water to a paste, it was but a step to the addition of sand to the paste in order to produce a mortar.

Probably the earliest method of burning lime was a heap of stone on the ground, with logs of wood for fuel. The pile of stones later was replaced by a crude shaft excavated in the side of a hill, the interior of the shaft being lined with larger stones of the same material as those to be burned. At the bottom of the shaft there was a horizontal passage to the outside. At the place where the horizontal passage joined the vertical shaft, an arch of limestone was made, and on top of this more limestone was placed, until the shaft was completely filled. A fire was then built under the arch, and the burning was continued until the stone was calcined. At a somewhat later date kilns were built in the open, having vertical walls of masonry of a circular or square cross section, but in other ways resembling the shaft in the side of the hill. These types of kilns are still to be found scattered throughout this country. From these early and crude types of lime kilns, the modern shaft kiln, with separate ovens for the fuel, has been developed.

Three factors have operated jointly to keep the lime industry in a comparative simple, primitive and undeveloped state.

First, the prevalence and wide distribution of lime rock. Limestone occurs in every state and territory of the United States, although some states are so poorly supplied (such as Delaware, N. Dakota and Louisiana) that they never can become important producers. This general distribution of the raw material has resulted in many small plants, often poorly and uneconomically constructed, scattered throughout the whole country.

Second, the ease of burning the stone to lime. The comparative easy and simple process of burning, with the resulting small outlay of capital required to erect a plant, has caused many persons to enter the business without familiarity or previous knowledge of it. Such plants are generally operated in an uneconomical manner and produce a poor quality of lime, the operators often being satisfied with day wages as a return on their investment.

Third, the perishable character of the burned lime. The perishable character of lime has also contributed to keep the burning in the hands of small producers located near some convenient market.

It is to be expected that a business which requires a small initial outlay of capital and that is so simple that the ordinary man can undertake it with fair success, would remain in a somewhat crude and primitive condition. It is impossible for the individual producer to retain the services of engineers and experts to introduce economies and the best methods of burning, since the output of the plant could not warrant the expense.

These conditions have materially changed in the past few years. Improved methods of quarrying, handling the stone and burning, while requiring more capital, have resulted in a decreasing cost per unit of output, and larger, more economically operated plants have thus caused the closing down or abandoning of many smaller crude plants. A larger factor in bringing about the centralization of the industry into a comparatively few advantageous locations has been the railroads. A plant well located as to transportation costs can reach broader markets more economically than many small plants. Thus the availability of transportation is today concentrating the industry in spite of the three factors mentioned, which by themselves would have kept the industry in the hands of many small producers.

In spite of improvements in the methods of producing lime, greater ease of transportation and of larger, more economical plants, the output of the kilns, that is, the burned lime, is brought into the market in much the same manner as it was centuries ago. Further, the method of using the lime has scarcely changed.

One of the earliest examples of the employment of mortar in masonry is presented by the Pyramids of Egypt. An examination of the mortar between the stones in the Pyramid of Cheops has shown it to be identical with that employed in Europe today, although its preparation must have taken place more than two thousand years before the Christian Era. Mortar made from lime was employed by most of the ancient races, notably the Phoenicians, Greeks and Romans. It is a sad commentary on the progress of the lime industry that the product is brought into the market in the same immature, crude, perishable form today as it was two thousand years before Christ.

The only improvement in the form of the merchantable lime known to the writer is that of hydrated lime. The fact that lime could be slacked to the form of a dry powder has long been known, and three methods have been used in the past to produce this powder.

1. Lime, in comparatively small pieces about the size of an egg, is placed in a basket and immersed in water for one or two minutes, until hydration has commenced, when it is withdrawn. The wet lime is generally put in heaps or silos in order to conserve the heat and prevent the escape of the vapor. The material swells, cracks and becomes reduced to a dry powder.

2. Lumps of lime were placed in a heap and wetted at intervals so that the mass is equally moistened throughout. The slacking proceeds as in the first instance.

3. Small pieces of lime are exposed to the air for a number of months. The material absorbs both water and carbon dioxide from the atmosphere, falling to dry powder. The powdered form consists of a hydrated sub-carbonate of lime containing about 10 to 11 per cent of water.

These methods of dry slacking lime are crude, and without the greatest care is exercised, the resulting product will contain particles of unslacked lime. Further, the hydrates produced by these methods are generally short and possess poor sand carrying capacity; in fact, hydrated lime produced by any of the above methods is only suitable for use on the soil, and such hydrates should not be confounded with hydrated lime manufactured by modern methods.

The modern method of manufacturing hydrated lime depends upon the addition of an exact amount of water to a pre-determined exact amount of lime. By no other method is it possible to produce a hydrate which will contain sufficient combined water to satisfy the demands of the calcium oxide present. It is important that all the calcium oxide is satisfied, otherwise the hydrate will be unsound and unsuitable for many uses.

This point will be insisted upon in any specifications that may be drawn for hydrated lime to be used in the building trade. It is vital that each manufacturer recognizes the fact that the formation of hydrated lime is a chemical change, involving the presence of exact amounts of lime and water. Since the process is chemical it requires the same careful supervision as any other chemical process, such as the manufacture of Portland Cement. The production of hydrated lime has been retarded more by the manufacture of only partly hydrated lime than from any other cause. It has only been a few years since it was nearly impossible to buy completely hydrated lime, and even at the present time the records of our laboratories show that more unsound hydrate is offered for sale than sound material, for which conditions the manufacturer is directly responsible. From a selfish standpoint, it is to the advantage of the manufacturer to produce a completely hydrated lime since such a lime contains the maximum amount of water. Again honesty is shown to be the best policy.

One has to but glance through the proceedings of

The National Lime Manufacturers' Association to learn that all are interested in the subject of hydrated lime. From 1904 to date, papers have been presented at each of the annual meetings, and every succeeding year the number of papers have increased.

It is to the interest of progressive manufacturers to build their business to such dimensions as to warrant the employment of skilled experts and engineers, in order that the cost of manufacturing may be reduced to the lowest possible unit, and, further, to present your products to the market in such form that they will keep and at the same time be convenient to use. The day of the barrel is passing. It is not feasible to market a bulky commodity in a package worth practically as much as the contents. How long will you continue to ship lime in bulk, with the accompanying inconvenience and loss by air slacking? These are questions worth the careful attention of each individual. Does not the manufacture of hydrate offer a solution to most of the troubles encountered in the marketing of lime?

I have often heard the statement that mortar made from hydrated lime is not as smooth working as that made from lump lime when slacked to a putty. This may or may not be true. If it is true, is it not possible to prepare a hydrated lime which will give as smooth working a mortar? Are not your most serious competing materials, hard wall plaster and cement, even less smooth in their working qualities then hydrated lime? If the mortar made from competing materials is less plastic than that made from hydrated lime, is the slight loss of plasticity of the hydrated lime mortar as important a factor as we often think it?

Advantages of hydrated lime from a manufacturer's standpoint: One of the greatest difficulties in connection with the burning of lime is due to the perishable quality of the product. In general this means that the common form of lime, lump lime, cannot be stored for any great length of time without deterioration, and this makes the operation of the plant dependent upon the seasons and the whims of the weather. Kilns are fired up, damped down or put out, according to the season of the year and the condition of the weather. This unevenness of operation results in higher unit cost. Since hydrated lime can be stored in bins, in a manner similar to cement, it is therefore possible to make the operation of the plant more continuous, thereby introducing economies in the unit costs. Further, the manufacture of hydrated lime also means an increased market, since hydrated lime can be used for a number of purposes for which lump lime is not suitable.

Advantages to the dealer: The greatest advantage to the dealer is the ease of handling, less deterioration of the product, and the freedom from fire risk. These three facts alone should convince the dealer that it is more economical to handle hydrated lime than lump lime.

Uses of hydrated lime: In general it may be stated that hydrated lime is suitable for any use in the building trade to which lump lime can be put, and it would appear that as soon as the material comes into general use, its advantages will be found to far outweigh any disadvantages. The use of hydrated lime does away with the necessity of slacking lime to a paste, thus saving the large amount of space required, as well as the labor. Since hydrated lime comes into the market in convenient packages, it is possible to proportion the mortar so as to have exact quantities present. This point is always appreciated by the architect and engineer, since it is a well known fact that when lump lime is used as much sand as possible is added to it, with the result that the mortar is lean and possesses little strength. The sand carrying capacity of lump lime has been much overrated, especially by the manufacturer, with the result that it is the common practice to oversand the mortar. This appears to me to be an illogical position for the manufacturer to take, since it means the use of less lime. We do not hear of the cement manufacturers stating that cement mortar should be oversanded; in fact, it is the custom whenever cement is used, to definitely specify the proportions of the materials to be added to it. The same position should be taken in reference to the use of lime. As to the uses of hydrated lime in general, it may be stated that they are identical with those of lump lime, except in such chemical industries where the heat of slacking becomes an important factor. To the writer's knowledge, hydrated lime has supplanted lump lime in a number of chemical industries for the following reasons: The greater convenience in handling, the ability to more definitely proportion the amount used and because of

E. W. LAZELL, PORTLAND, ORE., RECOGNIZED AUTHORITY ON LIME OF TODAY.

the more uniform lime content of this product. This has been the case even where the cost per ton of hydrating lime is higher than that of lump lime. If hydrated lime is correctly manufactured, and the particle of core and unhydrated lime removed, the resulting product possesses a higher grade of purity than the original lime from which it was made. Further, the product is more uniform, and these two facts appeal strongly to the chemical users of lime.

Strength of mortars produced from hydrated lime: In June, 1910, the writer presented the results obtained from an extended series of tests on both hydrated and lump lime mortar, to The American Society for Testing Materials. One of the most important conclusions drawn from these investigations was that the mortar produced from hydrated lime was stronger than that produced from the corresponding lump lime slacked to a paste. This conclusion was to be expected, since it is possible to manufacture hydrated lime by mechanical means under good chemical control, which is more thoroughly slacked than it is possible to slack lump lime on the job. The user in dealing with hydrated lime is handling a tested product which can be definitely proportioned and will produce known results. With lump lime the user is dependent always upon the thoroughness of slacking and it is well known to all users of lime that unless the paste is run off and stored for some considerable time, there is no assurity of complete and thorough slacking.

Practically all those who investigated the strength of lime mortars have recommended the use of hydrated lime rather than lump lime. In Bulletin No. 30, of the Bureau of Standards, the following statement is made: "The proportion of impurities in hydrated lime is generally less than that in the lime from which it is made. In building operations hydrated lime may be used for any purpose in place of lump lime, with precisely similar results. The consumer must pay the freight on a large amount of water, but the time and labor required for the slacking is eliminated and there is no danger of spoiling it either by burning or incomplete slacking. * * * * For all building purposes hydrated lime is to be preferred to lump lime. By its use the time and labor involved in slacking may be saved and the experience of the laborer is eliminated as a factor in the problem." From the above it will be seen that those who have carefully investigated hydrated lime are firm in their opinion that it is superior to lump lime.

In conclusion it may be stated that hydrated lime possesses advantages for the manufacturer, dealer and user.

To the manufacturer it means more uniform operation of the plant, less waste in the form of fine lime and forkings, no loss through air slacking, the doing away with the barrel plant and the manufacture of a product possessing good keeping qualities.

To the dealer it means no fire risk, no loss by air slacking, no barrels to add to the cost of lime, and a more convenient package.

To the user it presents a material possessing all the advantages of lime with none of its disadvantages, the certainty of producing a mortar having definite proportions of lime and sand, and further, this mortar possesses greater strength than ordinary lime mortar.

To sum the whole matter up, it may be stated that hydrated lime is the coming form in which lime will be brought into the market, or, in other words, hydrated lime is The Twentieth Century Form of Lime.

Lime-Sulphur Spraying Solution.

A good, old-fashioned, homemade lime sulphur spraying solution can be prepared by boiling together 15 pounds of lime, 15 to 20 pounds of sulphur and 15 to 20 gallons of water. The boiling may be done in a kettle, or feed cooker, with a fire beneath the container; or in a barrel, or other receptacle into which is introduced a jet of live steam. The boiling should be continued for 45 minutes to an hour, after which the lot should be diluted with water (preferably hot) to make 50 gallons in all. The material works easiest when applied hot; indeed, if allowed to remain standing for 36 to 48 hours amber crystals form, which detract materially from the value of the spray.

The amount of lime given in the formula is in excess of that required for the chemical combination of the lime and sulphur, but this abundance is of an advantage since it serves as a marker, thus aiding materially in determining whether the trees have been well sprayed. On the other hand, there is some objection to having this excess of lime in the mixture, since it wears the working parts of the pump and cuts out the nozzles in passing through them.

However, considering all of the advantages and disadvantages of this form of lime-sulphur, the fact remains that the results following its use have been quite satisfactory. In fact, there has been less fault found with this form and fewer reports indicating unsatisfactory returns, than with any of the other forms. Detailed directions for the preparation of this form of lime-sulphur are given in bulletin 169 of the Ohio Agricultural Experiment Station, Wooster, O.

A Lime Plant in the Arkansas Ozarks

The manufacture of rock products from the various stone formations of the Arkansas Ozarks promises to play an important part in the industrial development in that section of that state. The stone is its greatest undeveloped resource, as it affords the largest quantity of raw material to draw from. This resource has for years been considered a liability instead of an asset and has never been considered an industrial possibility until the last few years. A hundred bluffs along the White River and its tributaries and numerous creeks in the water shed, bare with the exception of a few gnarled cedars that grow on their highest points, have never presented an inviting possibility to capital. They have been exploited for their picturesque beauty, but the lack of information as to the different formations has always precluded in the mind of the casual observer the possibility of any commercial value.

Every moss-covered ledge that sticks its ragged rim out of the mountain sides is capable of being manufactured into a rock product of commercial value and in strong demand. This has been aptly demonstrated by a pioneer company, the Arkansas Lime Co., Ruddells, Ark., which led an attack on one of these mountains of rock with a small army of men five years ago, and who have turned a liability of the country in that length of time into a very live asset. From what was considered a worthless mountain side, purchased by them for a few dollars an acre, they have developed a plant and business valued at $100,000, and ship yearly hundreds of cars of chemical, agricultural and building lime; marble for building purposes; sand for polishing and grinding purposes; ground limestone for fertilizer; marble dust and glass sand. Only one ledge in the entire mountain is not being worked at a profit, and that is the flint, which they have not yet reached. Analysis of all these various products show a very superior grade.

Development of this plant started in quite a small way with local capital which was invested in a very small lime kiln. The manufacture of the other products grew from this, and were developed by a careful study of the various rock on the property, finding the purpose for which it could best be used as a commercial commodity; and by locating profitable markets. At the outset failure nearly overtook the enterprise. They were burning dolomite, a very hard limestone for lime, which made a very inferior grade. Further investigation of the mountain side disclosed a gigantic ledge of red St. Clair marble just above the quarry they were working. An analysis was made of the rock and it was found to be of superior quality for lime purposes. Their product immediately sprung into favor and success started. In two years' time the plant grew to a capacity of 60,000 barrels a year.

A demand began to arise last year for ground limestone among the farmers of the Delta and the lowlands of the South for fertilizing purposes and a ground limestone plant was installed.

All the limestone in the mountain was suitable for the manufacture of this commodity. The sales were slow at first, but the product was exploited by advertising with monthly bulletins, sending out 5,000 each month to the farmers of the South. This campaign was augmented by starting a demonstration farm on an 80-acre tract along the White river, which joined the plant. Last year they experimented with all the crops native to their territory. The ground was worked systematically, using the product as a fertilizer, in proportions advised by the Department of Agriculture, and the results were startling even to themselves, for they raised the bumper crop of that section of the state.

Underlying the formations is a sand ledge 110 feet thick. Samples were submitted to the glass factories last November and it was pronounced glass sand of superior quality. Contracts were placed for 400 carloads and a quarry opened the first of January. From the operations conducted by this pioneer company it can be readily seen that raw material for rock products is inexhaustible.

PLANT OF THE ARKANSAS LIME CO., RUDDELLS, ARK.

They have glass sand 110 feet thick under 1,900 acres; limestone under 1,900 acres, and the St. Clair marble under 50 acres. The glass sand, exposed and which can be had from open quarries without tunneling, is estimated at 220,000 carloads. The marble ledge face is 85 feet high and the lime and dolomite ledges combined are 220 feet. The marble is a superior building stone, does nicely for interior work, and is also adapted to monumental work. They have no cutting or polishing machinery, but have shipped many carloads in the rough. Cutting and polishing machinery will be put in sometime in the near future and an immense dressed stone industry presents itself. There will be no waste, for all the bad rock as waste will be burned for lime or ground into ground limestone.

The plant is now operated by two 50-h. p. kerosene engines, which pull a 25-h. p. compressor that runs three air drills. This power also operates the ground limestone plant which consists of a breaker and pulverizer. They have their own cooperage plant. All the rock is handled from the quarries to the plant by gravity.

QUARRY OF THE ARKANSAS LIME CO., RUDDELLS, ARK.

The value of the stone resources of the Arkansas Ozarks lies in their diversity and in the concentrated form in which the commercial ledges are found, lying one upon the other, all of which can be worked simultaneously, and with machinery driven from one power plant.

The Lawhead Brick & Tile Works, Loogootee, Ind., has reduced its common stock $20,000 and issued the same amount of preferred stock.

The Star Lime Co., Hannibal, Mo., recently began the work of overhauling and repairing the kilns preparatory to starting the burning of lime.

The Kelley Island Lime and Transportation Co. at Marblehead, Ohio, has been compelled to change from 8 to 10 hours a day on account of rush orders.

At a meeting of the directors of the National Lime and Stone Co., Carey, Ohio, officers were elected as follows: President, E. C. Edwards, Findlay; vice president, I. N. Bushaum; general manager, R. G. Spencer, Carey; secretary and treasurer, C. G. Spencer, Carey.

Alco Lime Co., Wilmington, N. C., incorporated, $10,000 capital stock; K. Clyde Council, president, Wananish, N. C.; St. J. L. Springs, vice president; J. B. Brinkley, Jr., secretary-treasurer; buildings on site; machinery purchased; daily capacity, 10 tons, pulverized shells, oyster shells.

Workmen's Compensation Law in California.

All lines of manufacturing and building trades are considerably disturbed at present by the workmen's compensation law, which took effect in California the first of the year. The law provides specific rates of compensation for injuries received by workmen in their occupations, giving great discretionary power to a state industrial accident commission. Only drunkenness or wilful misconduct on the part of the workman will relieve the employer of liability. Employers are required to make all possible provision for safety, and provision is made for a state liability insurance organization. Regardless of opinions of the advisability of such a law, the rates of compensation are regarded as high; and it is obvious that it will bear very heavily on the quarries and building material manufacturers, whose rates of insurance, either with the state or with private companies, are extremely high.

While insurance is not obligatory, failure to insure would have an undesirable effect on credit, as well as on relations with workmen; and as a way out of the difficulty, many are preparing to organize small insurance pools, in each of which a number of firms may join, contributing a common insurance fund to be deposited in savings banks. This, it is felt, would provide reasonable safety, and at the same time prevent imposition in the matter of rates.

In the building trades insurance will be practically necessary for, if the sub-contractor is not responsible, the liability extends first to the general contractor, and finally to the owner, making it practically impossible for an uninsured sub-contractor to get work. One benefit which may possibly result from this burden is to prevent irresponsible parties from undertaking work as building contractors, an evil which has been altogether too frequent in the past few years.

One effect in the more hazardous occupations will be a general discrimination against married men, as the compensation to dependents in case of death is a serious matter and much more burdensome than if a man has no dependents.

The American Cement Directory for 1914, issued annually by the Bradley Pulverizer Co., Boston, Mass., is now ready for distribution. This little booklet, bound in red morocco, vest pocket size, is always welcome to its recipients, for it is just about as convenient and instructive a little package as comes to the desk of anyone interested in cement or the manufacture of same.

CLAY PRODUCTS

Some Results of the N. B. M. A. Convention

Herbert Kaufmann, the journalist, who is the directing genius of the Exposition of Big Ideas to be held in New Orleans, addressed the convention of the National Brick Manufacturers' Association and declared that inasmuch as the board of directors of the Exposition company had determined to construct the buildings of permanent material, they were inclined to select brick.

The suggestion that came from Mr. Kauffman's statement was discussed until nearly midnight and resulted, finally, in referring the matter to the executive committee of the N. B. M. A. for investigation and for a conference with Fritz Salmen, who is not only a brickmaker in the New Orleans market, but who, also, has an interest in the development of the city. This committee will make a report and the N. B. M. A. will either give the publicity feature an unqualified indorsement or turn it down entirely. The plan may develop into a one hundred thousand dollar publicity campaign by the contribution of 10,000,000 building brick for the construction of the one hundred and fifty or more buildings of the Exposition.

This enormous contribution of brick will be as a donation, according to the scheme, from the brickmakers of the country to prove that the only fireproof material is burned clay and that the only building material that will make it possible to construct an exposition of such magnitude in such short order is this same burned clay.

The full report of the convention was published in the previous issue of ROCK PRODUCTS AND BUILDING MATERIALS, but a few words converning the entertainment features will undoubtedly prove of interest.

The entertainment for the visitors to New Orleans included many individual parties and many official pleasures. On Tuesday evening the women delegates were given a theater party at the Orpheum Theater while the men were being entertained at a smoker and cabaret show. Wednesday evening the Ancient Order of Chaldeans gave an entertainment to its members at the Cosmopolitan Hotel. Thursday a boat ride on the Mississippi River was enjoyed by the visitors, and in the evening the annual banquet was held.

Friday afternoon the trip to the Salmen Brick & Lumber Co.'s plant at Slidell, La., was made by special train. Guides took the party first through the dry press plant and then through the stiff mud auger plant.

The big Haigh continuous kiln, one of the largest ever constructed, was thoroughly inspected, as were the Rogers Uni-Trol dryer, one section of which has only recently been installed. Both of these features of the plant drew considerable interest as the Slidell clay, an exceptionally tender one, has caused considerable trouble. Mr. Salmen seems to have solved his problem with the installation of the Haigh kiln and the Rogers Uni-Trol dryer as he is not only drying the tender clay without cracking it but also is burning it perfectly and economically.

Another feature about the plant that attracted considerable interest was the method of taking the brick from the kilns and loading them into barges for shipment. Loading tracks are arranged on either side of the kilns, one for rail shipments and the other for barge transportation. The brick are set in small crate and are lifted by a huge crane and swung out over the bay into the barges.

The brick manufacturing business of the Salmen company, however, is only one portion of Mr. Salmen's interests. The sawmills and planing mills are a great institution in themselves.

The election of Eben Rodgers of the Alton Paving Brick Co., Alton, Illinois, as president of the Association, was one of the valuable results of the New Orleans convention. He has served the Association well in the last few years in an official connection, and now, with the responsibility of the leader placed upon his shoulders, will be a worthy standard bearer to carry brick and clay products in a forward march to ever greater and more glorious conquests.

EBEN ROGERS, PRESIDENT, NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

Making Use of Low-Grade Clays.

There are many purposes for which a clay can be used, says Brick & Pottery Trades Journal, of London, quite apart from the manufacture of bricks, tiles and simple pottery. Indeed, some of the clays which are quite unsuitable for these three classes of goods may be of great value in other directions. For instance, a clay which is rich in lime compounds would be regarded as "dangerous" by many brickmakers, but if it is of the right composition, or if more lime can be added to it at a cheap rate, it may be burned into a good Portland cement, or at least into a hydraulic lime. Portland cement is, in fact, made by burning a mixture of clay and chalk or lime-stone in suitable proportions and then grinding the product to a fine powder. The manufacture requires a certain amount of both capital and skill, but in many localities it has proved highly profitable.

It is a mistake to suppose that because a clay lacks plasticity it is worthless. For many articles, plasticity, to more than a limited extent, is highly objectionable, and highly plastic clays must often be mixed with non-plastic sand to reduce their tendency to crack. No one can tell without testing, whether a clay is useful or not, for the most uninteresting looking deposits sometimes develop beautiful colours on burning and many lean clays make excellent vitrified bricks and paving blocks.

Some clays of very low melting point make excellent covers for other clays, and black tiles are not infrequently made by dipping red-burning clays in a fusible clay. Some fusible clays may also be used instead of felspar in the manufacture of dark coloured glazes for "peasant ware" and similar pottery.

As every potter knows, the additions made to the clay often determine its value, for few potters use the clay just as it comes from the pit. Mixtures of several clays may be made which will give results not obtainable when a single clay is used, and in this way a clay which is apparently useless may be made valuable. Even a poor clay may often be made into readily saleable articles if it is mixed with a clay of better quality, obtainable in the same locality. This often affords a convenient means of using up low grade clays.

Some light coloured clays are useful for distempering purposes, as they possess just sufficient plasticity to adhere tenaciously to walls to which they are applied in the form of a thin slip or cream. Other light coloured clays may be used for the purposes for which pipeclay is employed. A few low grade clays are also capable of being used in the manufacture of paints; this is particularly the case with some brown clays.

Wisconsin Clay Notes.

Milwaukee, Wis., March 19.—The Wisconsin railroad commission, on request of the Wisconsin Clay Manufacturers' Association, has reduced rates on drainage tile about 20 per cent. The commission has ordered a rate of 1 cent per hundred pounds put into effect on shipments of brick from the brickyard of August Rodebusch, Mayville, Wis., to the plant of the Northwestern Iron Company of the same city.

John Maltpress, one of the best known brick manufacturers in southern Wisconsin, and probably the oldest in the state, recently celebrated his ninety-first birthday anniversary. He was born in England, where, as a young man, he worked as a farm laborer at from $15 to $25 and board for an entire season. Mr. Maltpress established his first brickyard at Indian Ford, later moving it to Edgerton, Wis., where he is still located. Mrs. Maltpress died in 1911. Nine of their fourteen children are living.

The Whitewater Brick & Tile Company has been incorporated at Whitewater, Wis., with a capital stock of $150,000. Warren Thorne of Whitewater, and J. G. Werner, superintendent of two of the largest brick plants in Mason City, Ia., are the prime movers in the project. Plans have been completed for the erection this spring of three new buildings and eighteen kilns. Experts say that the clay available at Whitewater is especially adaptable for the manufacture of fireproof building brick. A specialty will be made in the manufacture of fireproof bricks and blocks and various types of drainage tile.

Gladding, McBean & Co., one of the largest manufacturers of terra cotta and pressed brick in California, are starting a selling depot and warehouse at Sacramento, Cal.

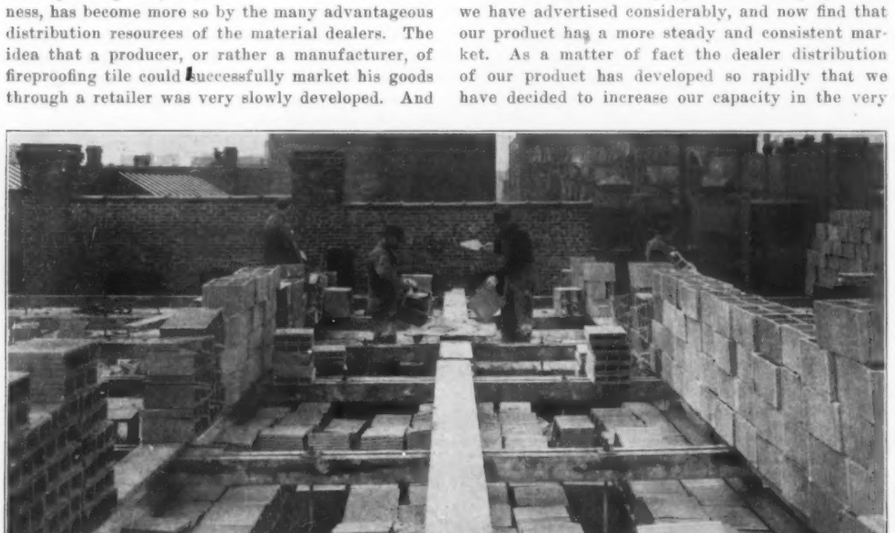
WHITACRE FIREPROOFING TILE READY FOR DELIVERY TO YARDS OF CITY BUILDING SUPPLY DEALERS.

Fireproofing Tile As a Staple Product

Dealers Readily See Advantage Offered by Manufacturers Who Anticipate Co-Operation from a Ready Source of Distribution—A Recent Development That is a Proven Success.

The modern element of adequate distribution for building materials of specific character comes with the approval by manufacturers of the reliability of resources of dealers. Progress in this source of distribution eventually forced universal recognition. Manufacturers are no longer reluctant to admit that "the source of the dealer" is a main advantage in the distribution of their products. Resourcefulness is an element pointed to by dealers in building materials that has placed many products of clay up in the high averages during the past few seasons. The gain, season by season, has been steady and reliable.

Fireproofing tile, a product of extensive usefulness, has become more so by the many advantageous distribution resources of the material dealers. The idea that a producer, or rather a manufacturer, of fireproofing tile could successfully market his goods through a retailer was very slowly developed. And only in late years has the development of the idea proven itself out to such an extent as to cause the manufacturer to seek the "source of the dealer" in marketing his goods. The co-operation of the dealer, consequently, has become a much sought factor.



FIREPROOFING TILE AT THE JOB—PRODUCT IS HANDLED WITHOUT WASTE.

The accompanying illustrations show fireproofing tile ready for distribution by a city dealer; demonstrating a readiness to render efficient service with sufficient goods to meet all requirements—the main point in successful retail business achievement. This particular fireproofing tile is the product of the Whitacre Fireproofing Co., of Waynesburg, Ohio, and Chicago Heights, Ill., and the steady advance of this company's business is marked with the dealer co-operation element in marketing the products.

The capacity of the Whitacre Fireproofing Co. is 600 tons of tile per day, and the largest percentage of this capacity production is distributed to the building trades through building supply dealers.

At the Chicago office of the company a few days ago C. C. Whitacre said, "Our business with the building supply dealers has worked to a wonderful advantage. While we are one of the oldest concerns in the fireproofing tile business and feel that our product has always stood on its merits, we gladly point to our advance of the past few years as resulting from the development of our business with dealers. The business was established in 1892 and up to a few years ago we made no attempt to distribute the product except through our own selling resources. Since taking up the dealer proposition we have advertised considerably, and now find that our product has a more steady and consistent market. As a matter of fact the dealer distribution of our product has developed so rapidly that we have decided to increase our capacity in the very near future. We believe firmly in dealer distribution and dealer co-operation."

The experience of the Whitacre Fireproofing Co. in successfully marketing their product through the building supply dealer is further evidence of the fact that there is but one proper and efficient distribution source for manufacturers of building materials. And this fact becomes more obvious every year. The more staple products in building materials have a steady demand and dealers are in constant touch with this demand, with resources for getting the materials to the job without waste of time. Furthermore, a local dealer's opinion when discussing materials with a prospective builder is generally accepted when the purchases are made and right here the manufacturer gets the benefit of dealer co-operation and likewise the benefit of the dealer's local advertising and his facilities for rendering adequate service to the buyer.

In presenting arguments to builders of homes for the use of specific materials, dealers are invariably "best posted" for the reason that they generally know the prospective purchaser personally. This enables Mr. Dealer to keep his "selling talk" entirely consistent with the buyer's peculiarities and hobbies, resulting in sales from minimum effort.

A FIRM THAT BOOSTS.

We print below a specimen letter being sent out by an enterprising Little Rock, Ark., concern. Such communications go out of their office monthly:

"With the passing of winter and the opening of spring and a general feeling that President Wilson has settled the financial problem; with a plentiful supply of money in our banks which can be had on favorable terms at a reasonable rate of interest; with an abiding confidence in the future; with an army of peaceful and desirable investors invading this territory, exchanging their savings for our lands, timber, etc., we feel justified in predicting that the year 1914 will be the greatest year of development the state has ever had.

"Believing that great prosperity is abroad in the land, and desiring a 'slice' of it ourselves, we have improved and enlarged our plants so that we can serve all who favor us and at reasonable prices. We will appreciate any business that you may give us and promise prompt and careful attention to your orders.

"Yours truly,
"Arkansas Brick & Manufacturing Co.
"W. W. Dickinson, President."

AN IMPORTANT BRICK MAKING COMMUNITY.

There are 17 brick manufacturing plants, with a maximum capacity of about 300,000,000 brick annually in the vicinity of Kingston, N. Y., known as Hudson River building brick. These plants, when running to full capacity, employ about 2,500 men, with a semi-monthly payroll amounting to more than $60,000. This money is largely distributed in the city. The yards vary in individual capacity from 3,000,000 to 45,000,000 brick annually, and the money expended by them for supplies and repairs yearly runs into thousands of dollars. This, together with the large number of brick barges employed to transport the brick to the New York market, aids materially in keeping busy towing lines and boat building plants located in the city.

The Mount Union Silica Brick Company, Mount Union, Pa., recently erected a steel water supply tank, built an addition 58 by 62 feet to the molding room, built five kilns of latest design and replaced its wood coal trestle with a steel structure to the former equipment and structures of its plant. During the month of December the plant made a record run of over 2,000,000 bricks.

At the annual meeting of the stockholders of the General Fireproofing Company at Youngstown, Ohio, recently, it was stated that the company had a good year. Business increased in every department. Especially good results were obtained in the metal furniture department. The retiring directors were re-elected.

Increased Cost of Brick Is Offset by the Lesser Upkeep.

A report recently made by the committee on fire protection of the Boston Chamber of Commerce includes some interesting figures on the comparative cost of frame and brick construction for dwelling houses, says the Insurance Post. The conclusion was that the slightly greater cost of brick, which averaged under 10 per cent more than frame, was more than offset in a few years by the lesser cost of maintenance and insurance and by the greater comfort and durability of the structure.

The report says that when lumber was cheap and brick was more expensive than now, the idea became general that the cost of brick as compared with frame was almost prohibitive, and this continues, although the conditions have changed so radically that the cost is now little more and the ultimate cost less.

Bids were obtained on a modern eight-room house, of good design and excellent arrangement, such as is frequently built in and about large cities, and on these the bids of the five contractors varied comparatively little, and so the average was taken as a fair test of the practical cost, the contractors including their profits in all cases. The average bid for the various types was as follows, the second column showing the percentage of excess cost of each type over the clapboard type:

Clapboard	$6,759	.00 per cent
Shingle	6,868	1.06 per cent
Ten-inch brick wall, hollow	7,372	9.10 per cent
Twelve-inch brick wall, solid	7,641	13.00 per cent
Stucco on hollow block	7,187	6.30 per cent
Brick veneer on hollow block	7,483	10.70 per cent
Stucco on frame	6,952	2.90 per cent
Brick veneer on boarding	7,226	6.90 per cent
Brick veneer on studding	7,153	5.80 per cent

The committee corresponded with contractors in various parts of the country in making up its report, and found from them that brick buildings were commonly estimated to cost 10 per cent more than frame, while brick veneered buildings could be put up in many sections for 5 per cent more than the cost of frame buildings, the difference in cost being usually more than offset by the lessened insurance premium.

Economy of heating a well built brick house is apparent and it is a well known fact that the brick house is cool when the weather is hot and warm when it is cold on the outside.

F. C. Hadden, manager of the Salina Vitrified Brick Co., Salina, Kas., recently purchased machinery and equipment in Omaha for the new dry press and dry pan which will be installed at the local brick plant soon. The new dry pan and press will enable the Salina company to make the best qualities of fancy facing brick, used extensively in store fronts and buildings. Heretofore the company has burned the wet mixed bricks and the fancy shapes and colors are difficult to obtain with the wet bricks. The dry pressed brick is also better in appearance than the wet pressed brick, being even at the corners.

ILLINOIS BRICK EARNINGS.

Illinois Brick Company earnings in 1913, as reported to the stockholders yesterday, were a trifle larger than in 1912 and the best in the company's history. The amount was $593,607, from which $332,055 was deducted for depreciation, taxes and reserve for renewals and repairs, leaving a balance of $261,552 available for dividends. The amount is 7.55 per cent on the $4,400,000 stock outstanding.

The total quick assets shown in the balance sheet at the end of the last year were $982,357. The increase over the amount reported in 1912 is largely due to an increase of approximately $130,000 in bricks and brick supplies. An important item among current liabilities is bills payable, shown to be $325,000. That item in the previous report was $172,000 and represents the company's indebtedness at the banks. The buildings and machinery account increased $323,000 last year.

William Schlake, president of the company, reported that at the end of the year the company had a much larger supply of bricks than a year ago. This was due to favorable weather in the closing months which enabled the company's plants to operate at full capacity. He reported that the plants were in a high state of efficiency. As to prospects, he said:

"I can but state that Chicago must and will continue to grow, and I feel that we will continue to reap a reasonably fair advantage from her growth and prosperity."

At the stockholders' meeting E. A. Thomas was elected a director to succeed C. B. VerNooy. Other directors were re-elected.

Clay Product Co., Brazil, Ind., has increased its capital stock from $150,000 to $200,000.

Worcester Floor, Wall & Tile Co., Worcester, Mass., incorporated by Carl Dodge, Herbert E. Bullard, Lincoln Potter; $10,000.

Preparations for resuming work of the Valley City Brick and Tile Plant, at Valley City, N. D., are under way. K. S. Ramsett, of Pingal, one of the heavy stockholders, recently went East to have tests made of the clay.

Fire recently did $5,000 damage at the plant of the Texarkana Brick Mfg. Co., Texarkana, Ark., destroying the boilers and the boiler rooms, the engines and a large portion of the pressing machinery and work rooms.

Danville Refractories Co., Danville, Ill., capital, $30,000; to manufacture and deal in refractories, sillica bricks, shapes, magnesite and chrome production, clay products; incorporators: Charles J. Crawford, W. C. Johnson, Christ R. Leins.

The properties of the Sibley-Menge Brick Co., bankrupt, Birmingham, Ala., which were sold at public auction, were purchased by W. C. O'Ferrell for approximately $180,000, the purchaser assuming also the lien claims, bonds and cash of the concern.

The brick plant and gravel pits owned by the Marysville Sand, Cement Block and Brick Company, located on the Yuba River, Harysville, Cal., has been sold to the Pratt Building Material Company, of San Francisco. G. E. Greene has been placed in charge as general manager. The company will remodel the plant and expects to ship fully 1,000 cars of sand per year.

The Brownwood Brick Factory, Brownwood, Tex., was sold recently by J. D. Fay to a company of local capitalists, who will greatly enlarge the plant and try to manufacture enough brick to supply the demand in that section of the state. The plant, as it is now, has a capacity of 20,000 daily, but the demand for the brick far exceeds the output of the factory, therefore the capital will be increased and the plant enlarged. Hal Hardeman was elected manager of the new company.

Work is to be started soon on the erection of a large modern brick plant near Detroit, Mich., which will cost about $100,000, and have a daily capacity of about 150,000 common brick. The plant is to be erected by John A. Mercier, Charles H. Bryan and Joseph Larkins, who have purchased the Edward Miller farm, extending from the Michigan Central railroad to Michigan avenue on the Miller road. The price of the property is said to have been about $75,000.

The Lincoln Paving Brick Company, Corning, Ohio, $1,000; W. L. David, C. R. Gale, Ralph Burroughs.

The plant of the defunct Denbigh Pressed Brick Co., Denbigh, N. D., has been taken over by the recently organized Mouse River Brick Company.

Jourdanton Brick and Tile Company, Jourdanton, Texas, Atascosa county; capital stock, $10,000. Incorporators: E. Danal, W. H. Hill, H. G. Burkhalter.

The annual meeting of the board of directors of the Troy Fireproofing Co., Troy, N. Y., has been held, the following officers has been elected: President, William Armstrong; secretary and treasurer, Fred B. Jillson.

The American Fire Brick Co., Spokane, Wash., leased the Granite block storeroom at N11 Washington street and is moving in its downtown office and showrooms. The company will have more space in the new quarters.

The Mouse River Brick Co., of Denbigh, McHenry county, N. D., has been organized and a charter taken out. The company is capitalized at $50,000 and the incorporators are Dr. A. Carr, of Minot; C. A. Stubbins, of Granville, and H. L. Cartzdafner, of Denbigh.

Large extensions are being made to the plants of the Hocking Valley Brick Co., Columbus, Ohio, to enable the concern to meet increased demands for its products. Contracts have been closed for approximately 4,000,000 bricks, shipment of which is to be started April 1. The company is installing a large amount of new machinery at its plants and is building a new storage house.

C. D. Kimble, Independence, Kan., as trustee for the bondholders, has filed suit for the appointment of a receiver for the Independence Brick Co. and the sale of the property. He holds a deed of trust on the property, given to secure payment of $50,000 in bonds, issued a year ago. The company recently announced that the corporation would be reorganized and the plant doubled.

Kansas is facing a temporary famine in common building brick. Only three plants out of twenty making "common builders" have been able to run this winter. One after another closed because of break-downs in machinery or lack of gas. One plant at Blackwell, Okla., closed six weeks ago because of a break-down and will not be able to resume manufacture of common builders for several weeks. Fire destroyed a building of another plant.

C. C. Baker, of Sherman, Tex., head of the C. C. Baker Construction Company, which has been engaged in street paving work for some time, has returned from a business trip to Chicago. While there he purchased two complete brick manufacturing plants and will put one of them up in Sherman and the other in Terrell, Tex. These plants will make fifty-two different styles of finishing brick, and each will give employment to quite a number of men.

The Little River Brick & Tile Co. has been incorporated for $1,000,000, with the head office at 15 Ouellette ave., Windsor, Ont. Little River, in Sandwich West township, will be the site for the brick and tile factory. The property contains 50 acres, lying adjacent to the C. P. R. tracks. About $30,000 worth of machinery will be installed to begin operations. Directors of the company are George W. Williams, Sr., Edward Wigle, and Mayor Henry Clay, of Windsor, and Louis Knauss and George W. Williams, Jr., of Detroit.

GYPSUM PRODUCTS

New Company Is Formed.

Hot Springs Alabaster & Plaster Co. Organized by Members of Old Companies.

Three South Dakota corporations held stockholders' meetings at Hot Springs, S. D., on Tuesday, March 10—the National Alabaster Co., owning a large tract of alabaster land five miles went of the city; the Hot Springs Gypsum Products Co., which three years ago purchased 25 acres of gypsum land within the northern limits of the city, and the Hot Springs Alabaster & Plaster Co., incorporated last month.

The last-named company was organized by the stockholders of the two old companies for the purpose of consolidation, thus concentrating capital and eliminating the necessity of two plants. The plant, which will be modern in every way, will be located just north of the Burlington round house. Alabaster will be sawed into slabs which, when polished, will be used for interior decorations as a substitute for marble and for which there is a large demand. Gypsum will be manufactured into plaster for dental and surgical use, for high class interior decorations and ordinary hard finished walls.

The directors of the new company are: Ray Nye, president, Freemont, Neb.; F. M. Stewart, vice president, Buffalo Gap, S. D.; W. A. Jackson, secretary-treasurer, Chicago, Ill.; Dr. R. C. Brophy, H. C. Moore, E. J. Stevens, of Chicago, Ill.; E. L. Hoppe, Freemont, Neb.; A. C. Clas, Milwaukee, Wis.; C. T. C. Lollich, Hot Springs, S. D.

A contract has been entered into with a well-known and reliable investment company of Chicago for the sale of stock. The properties have been thoroughly investigated and the products tested by experts in each particular line. It is believed that the $60,000 necessary for the construction of the plant will be promptly disposed of and work on the building commenced with the opening of spring.

New Plaster Mill at Fort Dodge, Ia.

There are several unusual features in the new plaster mill the American Cement Plaster Co. is putting up at Fort Dodge, Iowa, that will be of interest to plaster manufacturers. The buildings are of steel construction as are also the bins, kettle pits and stairways. The plant is designed for an output of 600 tons per twenty-four-hour day with a crushing plant of the same capacity for an eight-hour day.

The plaster machinery, as well as the elevating and conveying equipment, was built by The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kansas. Among the special features in this line are the independent motor drives for each machine, which allows considerable flexibility in operation.

The burr mills are of Ehrsam heavy duty horizontal type with independent motor drives. The classifiers are of their new ball-bearing type and adjustable for a separation as fine as 95 per cent through 100 mesh.

The upright kettle shafts are mounted on ball bearings and geared through a short countershaft to their individual motor. This same countershaft drives the feeders controlling the flow from the kettle bin to the kettles. There is an overhead ground material bin for each kettle.

The mixers are of the well-known type with self weighing hoppers. They are also equipped with independent bins and feeders.

Care was taken in the design of the plant to make it as nearly dust-proof as possible. All elevator legs and conveyor boxes are of steel with closed covers. All inside bins are of the horizontal circular cross-section type with dust-tight inlet and outlet openings, as have all feeders and spouting.

Special care was taken in the design of the elevating and conveying system to make it extra strong, as it was realized that a weakness here would effect the operation of the mill quicker than the shutdown of an individual machine.

Steel floors extend throughout the mill building and allows of easy access to all bins, kettles and overhead machinery.

PIONEER PLASTER MAN DIES.

Henry W. Wotherspoon, part owner of the Wotherspoon Plaster Mills, of New York City, which were founded by his father, James Wotherspoon, in 1829, and uncle of Major-General William Wallace Wotherspoon, assistant chief of the General Staff at Washington, died recently at the age of 75 years at his residence, 46 West One Hundred and Twenty-seventh street. He was born and educated in that city, and served during the Civil War as engineer in the Seventh Regiment. He was a member of Lafayette Post, G. A. R., and of the War Society of the Seventh Regiment.

The Acme Plaster Company is getting ready to start up its mine and operate the plant. It has been shut down for a long time, due to closing up the shaft, but is now ready for business again. Mr. Dorchester, who was formerly eastern representative of the U. S. G. Co., New York, is the sales manager.

The Rock Plaster Mfg. Co., New York, N. Y., is about to erect three large reinforced concrete buildings at the footh of 150th street and East river, The Bronx. One wil be a four-story and basement mill 80x122, another a one-story and basement storage building 27x50 and the third a one-story engine and storage building 80x52. Work is to be undertaken at once. The Turner Construction Co. has the general contract for all of them.

A large force of men is engaged in overhauling the locomotive and tracks at the quarry of the Manitoba Gypsum Co., Gysumville, Manitoba, and active operations will begin in a few days, using dynamite until the frost disappears.

Standard Mfg. Co., New Orleans, La., has been organized by A. C. Heath, M. A. Sherick and Wm. P. Bobb; contemplates erecting plant to manufacture cleaning powder from gypsum; temporary location, 223 Bourbon St.

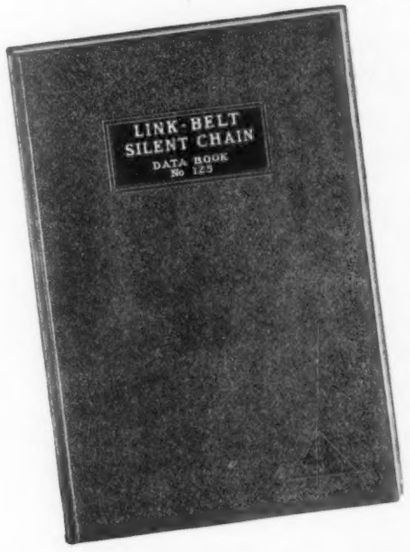
Tracy, Calder and Johnson, Los Angeles, Cal., contractors, have purchased the Anderson-Thomas gypsum claims near Moapa, Nev. They plan to put a crushing plant on the property, and ship the raw material to a Los Angeles plant.

"Motor Trucks of America," issued by the B. F. Goodrich Company, Akron, Ohio, known as Vol. 2, 1914. In this work is illustrated the principal trucks manufactured in this country, with suggestions as to sizes of cars that can be used for various purposes. It contains 114 pages and describes graphically the principal points of the various trucks—and how requirements are filled.

NEW LINK-BELT DATA BOOK ON SILENT CHAIN DRIVES.

For the first time in history an engineering data book has been published by a manufacturing concern which will enable users of power to select the correct silent chain drives for their work and determine exact costs from list prices shown in the book.

Besides giving complete engineering information on silent chain driving in simple and compact form, Data Book No. 125 describes many uses of silent chain for the efficient transmission of power and



gives specific reasons and illustrations showing application in a large variety of uses.

Link-Belt Silent Chain is a series of links connected by joints which consist of segmental case-hardened bushings and case-hardened steel pins. The chain is as flexible as a leather belt—as positive as a gear. Its rated efficiency is 98.2 per cent on actual test. It will transmit any amount of power quietly. Over 200,000 installations, we understand, were drawn upon for the information contained in this data book.

The book is the only work of its kind and consists of 112 pages, bound in flexible red cover. Copies can be obtained free of charge by addressing the manufacturers, Link-Belt Co., 39th street and Stewart avenue, Chicago.

INTERNATIONAL BUILDING CONGRESS AT BERN.

The fourth International Congress of Building and Public Works will be held at Bern, Switzerland, August 23 to 27, 1914, under the patronage of the Swiss federal government. The following questions will be discussed: "Collective work contracts—International eventual regulations for the convention reports between associations of syndicates of employers and workingmen's organizations," "Technical instruction," "Strikes and Lockouts—Search for practical means of doing away with these conflicts," "Scaffoldings and hoardings. Studying of their construction from a technical point of view with regard to the safety of workmen thereon."

Sand and Gravel

Louisville Sand and Gravel News.

General Improvement in the Weather Prompts Activity Amongst Sand and Gravel Men—Slider Company Making Good Progress on New Plant.

Louisville, Ky., March 20.—The general improvement in the weather, and consequently in building operations in this section, has been responsible for more activity among sand and gravel men than has been the case since last fall, before the winter shutdown. Small jobs have been plentiful, and other work, such as street construction, sewer building and larger construction jobs in general, is beginning to open up, making the prospective call for sand and gravel quite as strong as usual, if not more so.

The E. T. Slider Co. resumed work on the river this week, doing its first pumping since fall. Business has been going forward nicely, a plentiful volume of small orders being filled from the ample reserve stock of the company. Work is progressing rapidly on the new sand and gravel plant on the river which is being installed by the company, but it will hardly be completed for several months, as it is a rather large job. Most of the equipment for the plant has been purchased from the Raymond W. Dull Co., Chicago. A crusher will be installed as part of the plant, as a considerable quantity of over-sized gravel is handled by the company which, it has been decided, it would be profitable to crush, instead of throwing it aside and handling only gravel which comes from the river in the proper size at the outset.

Vice-President J. R. Nugent, of the Nugent Sand Co., reports that the company has dug sand all winter, the mildness of the weather making it unnecessary to cease operations on the river. During the occasional cold snaps exhaust steam was turned into the hoppers, preventing freezing, and enabling work to proceed without interruption. There was very little freezing even in the barges, which were exposed to the weather. Thomas Nugent, secretary and treasurer of the company, is building a three-story apartment building at Second and Burnett streets.

The Ohio River Sand Co. has had its boats back at work on the river for some days, as it ran short of sand and found it necessary to get material or turn down orders. This indicates the activity which is in evidence around Louisville, and the volume of business which has already been handled, as well as that which is in prospect. The company's sand and gravel handling plant at Thirtieth and Broadway will be finished in a short time, and promises to save the company a good deal of time and money in handling business in the western part of the city.

Will Develop Boston Land and Gravel Resources.

Baltimore banking interests, headed by Middendorf, Williams & Co., Incorporated, have organized, under the laws of Delaware, the Boston Sand and Gravel Co., which has acquired extensive sand and gravel business in and around Boston. The capitalization of the company is $600,000 sinking fund 6 per cent first mortgage bonds, $400,000 7 per cent cumulative preferred stock and $800,000 common stock. Noble Maxwell, of Richmond, Me., will be president of the company. The other officers will be: Colin McLean, vice-president; E. L. Lane, vice-president and general manager; R. S. Shriver, vice-president and secretary; T. Garland Tinsley, treasurer, and Jacob France, general counsel.

The directorate is composed of representative financial and mercantile interests of Baltimore and Boston, as follows: Noble Maxwell, A. C. Wise and E. L. Lane, of Boston; T. G. Tinsley, E. L. Norton, Colin McLean and R. S. Shriver, of Baltimore.

The sand and gravel deposits owned by the company are estimated to contain about 200 acres. This is the only available supply in that vicinity, thus giving the company practically a monopoly of the business in and around the Bay City. In addition to the sand and gravel business taken over, the Boston Sand and Gravel Co. has acquired from the same interests a fleet of steam ocean-going barges and will further increase this fleet.

Sand for Filtration Plants.

In answer to an inquiry from Minnesota, requesting information concerning sand suitable for filters, the United States Geological Survey states that clear white quartz sand of the proper size is the common material used in filter beds. The specifications for the filteration plants at Springfield, Mass., and Toronto, Canada, are practically identical with those of the Washington plant and are as follows:

"The filter sand shall be clean sand, with either sharp or rounded grains. It shall be entirely free from clay, dust, or organic impurities and shall, if necessary, be washed to remove such materials from it. The grains shall, all of them, be of hard material which will not disintegrate. The effective size shall not be less than 0.25 millimeter nor more than 0.35 millimeter. The uniformity coefficient shall not be more than 3.0. The sand shall be free from dust and shall not contain more than 1 per cent finer than 0.13 millimeter, and shall be entirely free from particles over 5 millimeters in diameter. The sand shall not contain more than 2 per cent by weight of lime and magnesia taken together as carbonates. In all other respects the sand shall be of a quality satisfactory to the engineer."

Gravel for the floor of filters may be broken trap rock or granite screened to the proper sizes, or gravel screened from sand and gravel banks of a sandy nature. Gravel screened from hardpan or clayey material can not be sufficiently cleaned. The gravel should not contain more than a very small amount of shale or limestone and should be washed entirely free from fine material.

Loogootie Glass Sand Co., Louisville, Ky., increasing capital from $10,000 to $25,000.

The Edgewood Sand and Gravel Co., Limited. Capital stock $100,000. Headquarters, Winnipeg; directors, H. D. Mewhirter, J. E. Robertson, W. H. Carter, A. B. Ellis, G. W. Jocelyn, A. T Davidson, R. J. Blanchard and F. J. Webster.

The Kaw Valley Sand Co., a stock company incorporated a few days ago under the law of Kansas, has elected officers and made plans for a sand plant on the Kaw river at Turner, Kas. The company is capitalized at $100,000, and has fifteen stockholders. Construction of the plaint at Turner will begin immediately. James E. Morton is president of the company, E. M. Metcalf is secretary and counselor, R. B. Porter treasurer. These, with E. W. McManus and D. R. Ingram, make the board of directors.

Will Protest Against Proposed Freight Rate Advance.

Evidence will be introduced before the interstate commerce commission in September by Chicago sand and gravel dealers to show that the proposed general advance of 5 per cent in freight rates by Eastern railroads will result in increased charges of 20 per cent or more so far as some of the cheaper commodities are concerned.

If the contemplated advance becomes effective, it is contended, the rate on sand and gravel from Gary, Michigan City and other points in Indiana to Chicago will be increased from 25 to 30 cents a ton. The firms protesting are the American Sand and Gravel Co., the Lake Shore Sand Co., the National Sand Co., and the United States Sand Co.

Says Rate is Misleading.

"The term '5 per cent advance' is misleading," said Walter E. McCormick, attorney for the American Sand and Gravel Co. "What the Eastern lines expect to accomplish is to advance their rates 5 per cent with a minimum increase of 5 cents a ton on all commodities. The latter provision, in the event the advance is permitted, will result in rates on various low-priced commodities being increased 20 per cent or more. Among the latter are tile, brick, sand and gravel.

"The American Sand and Gravel Co., and other concerns now pay a rate of 25 cents a ton on sand and gravel shipped from Gary, Ind., and contiguous territory to Chicago.

"Sand and gravel dealers contend that they are paying a very liberal amount at present for transportation service and that an increase in rates would be unreasonable. If these rates are increased many sand dealers will be placed at an additional disadvantage in competing with concerns which obtain sand from the bottom of Lake Michigan off the Chicago shore and are not obliged to pay freight rates in order to deliver it to their customers."

A VALUABLE BOOK.

"The Mortar-Making Qualities of Illinois Sands," by C. C. Wiley of the Department of Civil Engineering of the University of Illinois, has just been issued as Bulletin No. 70 by the Engineering Experiment Station of that Univeristy. Although sand is one of the most common materials in engineering construction its characteristics are perhaps generally the least well known and it usually receives but little care in its selection and use. Specifications for sand are usually so brief and indefinite as to be of little value. This condition of affairs is probably due in a large measure to the lack of definite knowledge of the mortar-making qualities of typical sands and to a lack of appreciation of the fact that sands from different deposits differ greatly in their characteristics and that these characteristics exert a marked influence on the mortar or concrete made from the sands. In this bulletin are given the results of a series of tests on thirty-two samples of Illinois sands obtained from various parts of the State. The effect of the characteristics of the sand on the quality of the mortar is discussed. From these considerations a proposed classification of sands is offered together with specifications for each class. Copies of Bulletin No. 70 may be obtained upon application to C. R. Richards, Acting Director of the Engineering Experiment Station, University of Illinois, Urbana, Ill.

Alexandria Gravel Co., Lake Charles, La.; capital stock $25,000, incorporated by F. F. Rogers and others to develop gravel deposits in Calcasieu, Rapides and other parishes.

Atlas Moulding Sand and Gravel Co., Chicago; capital, $60,000; deal in sand and gravel, building materials, etc.; incorporators, Egbert Robertson, Lazerus Krinsky, John L. Anderson.

Officers of the Beloit Sand and Gravel Co., Beloit, Wis., closed a big deal in Chicago for the entire output of the pits over that which is used in Beloit. The deal is a big one and the contracts have been closed at a good figure for the entire building season of the coming year.

The Rockton Moulding Sand Co., operating a plant near Beloit, Wis., is making various improvements at its yards and plant. A narrow gauge railroad is being built from the pit to the loading machine and a new steam shovel has been purchased from the Thew Automatic Steam Shovel Co., of Lorain, O.

The Alexandria Gravel Co. has been incorporated at Beaumont, Texas, with a capital stock of $25,000. F. F. Rogers, one of the incorporatrs, was recently awarded a $75,000 gravel contract by the parish. The incorporators are D. J. Williams, president; G. W. Brown, vice president, and F. F. Rogers, secretary and treasurer.

Articles of incorporation were filed recently by the Elk Run Sand & Gravel Co., Waterloo, Iowa, which is capitalized at $5,000. The object is to buy and sell sand, gravel and building material and to lease and operate sand and gravel pits. C. C. Voelker is president and treasurer and Samuel Shilliam is vice president and secretary.

Extensive plans are being made for the opening of the new works of the Northern Gravel Co., at its South Muscatine, (Iowa), pit. Active work at the place will start about April 15th and the new buildings which will be erected will be built as quickly as possible. It is planned to build a large storage shed. The sand and gravel will be separated into six grades and each will be kept in a separate pocket. If present plans mature the cars will be filled directly from the pockets in which the gravel is put, thus saving handling it more than once.

Manhattan Sand Co., Inc., Manhattan, N. Y., general contracting, excavating, etc.; deal in sand, etc.; cap., $50,000. Incorporators: L. Velotta, N. Scott, Brooklyn; L. J. Clark, Jersey City.

The Crystal Lake Rock & Gravel Co. has been incorporated with a capital stock of $5,000 at Crystal Lake, Wis., Edwin Hammett, August Westermeyer and Mike Lauer, the latter of Crystal Lake, being the incorporators. The newly incorporated company owns gravel pits about a half mile south of Crystal Lake, and has options on adjoining property, making it possible to carry on this business for a number of years. During the next two years the Sheboygan Railway & Electric Co. will use about 40,000 yards of crushed rock and other raw material and this company was organized to furnish material at cost to the railway company. When the entire work of improving the street car line is finished the equipment and material at the pit will be of no further value to the company, and the Crystal Lake Rock & Gravel Co. will then enter the field as a private company, and will dispose of concrete materials and larger sizes of rock

The Mid-Continent Glass Sand Co., Roff, Okla., has recently been established. This new enterprise is now fully equipped and operating one of the largest plants of the kind in the middle west and its output is sufficient to more than supply the demands for this product for all the glass manufacturing enterprises in Kansas, Oklahoma and Texas. The grade produced is par excellent. The sand is 99.74 per cent pure white silica and when washed and cleared by the process used by this company is the best possible sand obtainable in the United States. This company owns a large tract of land adjacent to Roff, which has an inexhaustible supply of this silica. H. G. Larsh, widely known throughout the state in financial circles, is president, and L. M. Speer, who has had many years' practical experience in the glass sand business, is manager and superintendent. Other members of this company are: T. W. Clelland, vice-president; D. L. Larsh, secretary; Gosche Thomsen, treasurer. Their plant has a daily capacity of in excess of 300 tons.

A New Type of Dry Mixer.

It is a batch mixer which can be charged and discharged without stopping the machine. It is enclosed in a dust tight housing.

This mixer, illustrated on this page, developed primarily for the glass industry, is excellently adapted for use in all establishments where fine materials are to be mixed dry. It was designed to meet a definite need in the glass busines as there was found to be no type of mixer on the market entirely suitable for mixing the batch and cullet. This machine proved to be so satisfactory in its original installation that many other glass plants immediately adopted it and found it to be a great saver of time and labor as well as a better mixer than the devices previously used. Its dust-proof features are also strongly in its favor and have done much to increase its popularity.

The mixer is of the drum type, provided with internal blades or not, depending upon the service for which it is required. The revolving steel drum is entirely enclosed within a steel housing, which serves also as the hopper, into which the drum discharges the mixed material. The feed spout, shown in Fig. 1, delivers centrally into the side of the drum, the shaft passing through the spout. One of the discharge gates is shown in this same view. The gates are operated through a sleeve mounted on the shaft on the side opposite the feed spout. The two gates are diametrically opposite, so that they may be operated in balance from the shaft sleeve without stopping the drum.

Figure 2 shows the mixer installed in the basement of a glass plant. It is charged from the floor above in definite proportions and the lever operating the discharge gates is also operated from above so that no attendance whatever is required at the mixer. The drum is operating continuously. The discharge from the drum falls from the gates into the hoppered housing which delivers the mixer material to the bucket elevator shown at the left.

In another adaptation of this mixer, instead of conveying the various materials to the mixer, the mixer is mounted upon trucks and travels under its own power to the various bins, from which it is charged. The mixer is also supported upon a scale platform so that it proportions the various ingredients. In operation, all scale beams are first set for the required proportions. The car is then run under the first bin, the gate opened, and the material drawn into the drum till the first beam rises. Next the proper amount is drawn from the second bin, and so on. When the entire charge is secured, the drum starts to revolve, and the car, at the same time, is run to the furnace hopper, into which the mixed materials are fed.

This mixer is manufactured by the Stephens-Adamson Mfg. Co., of Aurora, Ill., whose experience in the design of labor-saving conveying systems enables them to adapt this mixer to suit the local needs of handling the material.

The Greenville Gravel Co. is installing a $40,000 plant near Ackerson lake, Michigan, which is expected to be in operation about May 15. This concern will probably supply the city of Jackson with a considerable quantity of screened gravel for the building of roads next summer.

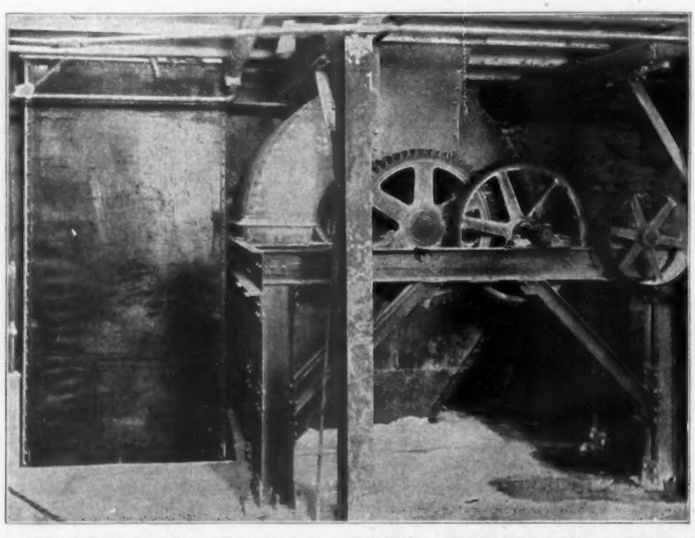


FIG. 1. 8-A GLASS BATCH MIXER WITH DUST COVER REMOVED. FIG. 2. THE MIXER IN OPERATION IN THE BASEMENT. IT DELIVERS BELOW THE FLOOR TO THE FOOT OF THE ELEVATOR.

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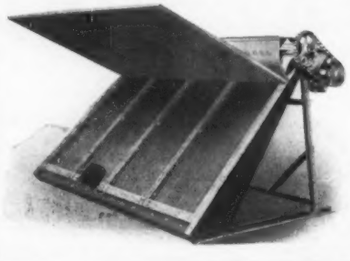

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All changes of copy where proof is desired must be in our office by the 12th of the month preceding issue for which it is intended. Where no proof is desired, copy must be in office by the 15th. Advertising forms close on the 20th and paper goes to press on the 22nd.

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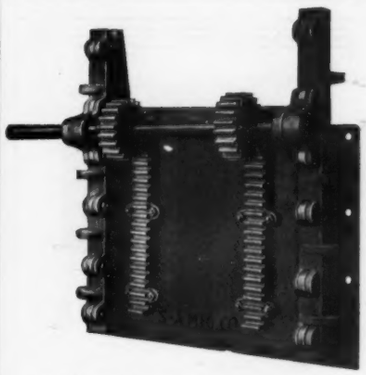
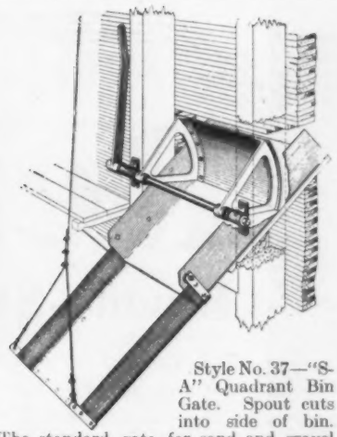


Style No. 11-D—Roller bearing slide gate for bottom discharge bins.



Style No. 37—"S-A" Quadrant Bin Gate. Spout cuts into side of bin. The standard gate for sand and gravel plants. It is practically self-closing and is easily opened as the gate operates at right angles to the flow of material.

Style No. 53—"S-A" Simplex Cut-Off Gate. For bin bottoms. A heavy and substantial gate, easily operated. May be used with coarse and lump material. For sand, gravel and stone bins.

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THE SCHAFFER POIDOMETER

DESCRIPTION

THE Schaffer Poidometer is a machine which weighs and regulates the flow of materials traveling in a continuous stream over a conveyor. It is built very substantially throughout, free from delicate working parts, and is mounted on a steel angle frame, complete with driving machinery. It can be attached to a hopper, bin or elevator spout, and delivers the material in any predetermined quantity at an even regular flow, and records the amount handled, regardless of changes in specific gravity, amount of moisture, or sizes of materials.

When it is desired to unite a number of different materials there is placed one machine for each of the materials, and each machine will deliver the desired proportions in a constant stream and insure an even mixture.

The machine is perfectly self-contained and can be set up immediately. It has a very wide range in capacity and can be readily adjusted, both for different quantities and also for a large variety of materials of different consistencies.

The wearing parts are limited in number and are of such a nature that they can be easily replaced. The poidometer is the result of many years of experiment with feeders and is proven a practical device.

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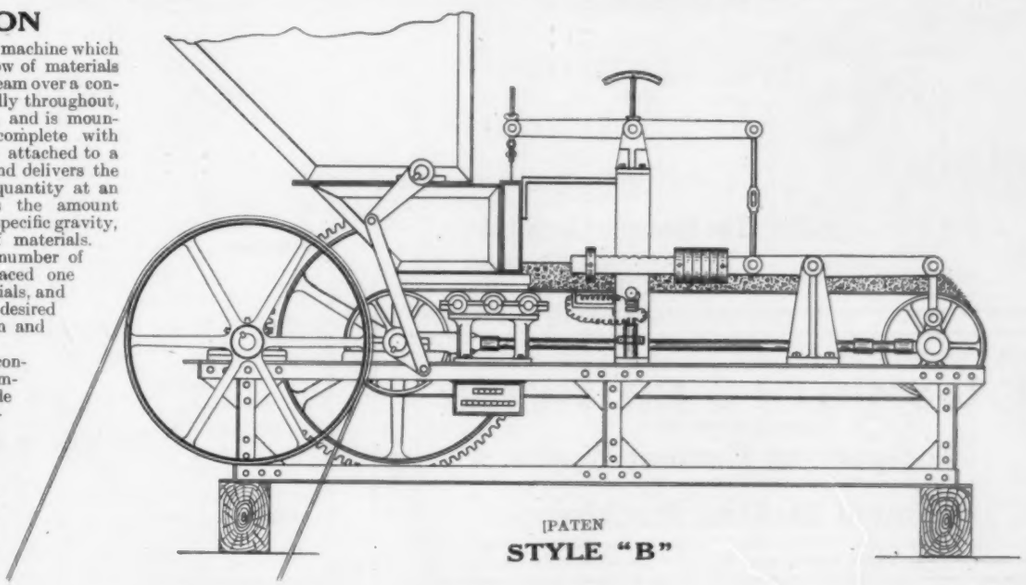

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STYLE "B"

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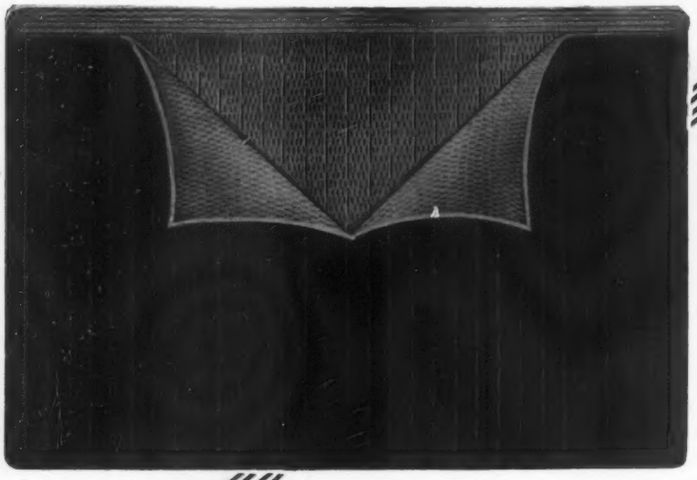

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BECAUSE:

Protected inner stitching **prevents ply separation**—the base is a 37½ ounce duck, **the heaviest practical to put in a belt**—special edge construction resists **wearing down** on conveyor service—laminated construction **holds fasteners and bucket bolts**—and it is filled with a compound which **prevents cracking and maintains pliability.**

Carried in stock in 1000 foot rolls all sizes from 1 inch to 36 inch wide inclusive

A high grade, honestly made, quality belt at the price of an ordinary belt

Imperial Belting Company

Factory and General Offices:
LINCOLN AND KINZIE STREETS
CHICAGO

TRADE MARK.

PERMANENT and THOROUGH
Water-proofing of Cement Work
results from the use of

Maumee Compound

SPECIFICATIONS AND SAMPLES ON REQUEST

The Maumee Chemical Co.
403 ST. CLAIR BUILDING
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F. L. SMIDTH & CO. 50 Church St. NEW YORK
SPECIALISTS IN
Engineering Cement Works
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THE FULLER ENGINEERING CO.
Designing, Constructing and Operating Engineers
ANALYTICAL CHEMISTS
Cement, Hydrated Lime and Gypsum Plants a Specialty
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WHEELING WALL PLASTER
UNIFORMLY GOOD

"QUALITY"
"SERVICE"
and
"RIGHT PRICES"
The Winning Combination

WHEELING WALL PLASTER COMPANY
WHEELING, W. VA.

With the Quarries

New Trap Rock Plant.

A new trap rock concern under the name of Trap Rock Co., Minneapolis, Minn., which has a large deposit of trap rock and crushing plant at Taylors Falls, Minn., has recently reorganized and now has associated with it John Wunder, of Minneapolis, as vice president and general manager, in charge of all operations of the company. Mr. Wunder has been in the crushed stone business in Minneapolis for the past 15 years, operating limestone quarries and as a general contractor, but has abandoned this to devote his entire time to the operation of the plant at Taylors Falls, which is now being enlarged, and to the construction and operation of an entirely new plant, equipped with the largest and most modern machinery. This new plant is to be located on the Soo Line, at Dresser Junction, Wis., a short distance from St. Paul and Minneapolis, Minn., where the company owns several hundred acres of trap rock.

The contracts for all of the crushing machinery for the new plant has been placed with the Power and Mining Machinery Co., Cudahy, Wis., consisting of its largest size of jaw crusher, which machine has a feed opening 5'x7', made entirely of steel; approximate weight, 225 tons. After passing through this machine the material is further recrushed in a No. 9 McCully gyratory crusher and a set of 54-inch diameter by 24-inch Superior crushing rolls, all manganese fitted.

In addition to the above equipment there will be installed in the plant 48-inch pan conveyors, 60-inch diameter revolving screens, a complete set of shaking screens, elevators and belt conveyors.

The plant will be completed early in the spring and will have a daily capacity of 2,000 yards of trap rock.

The company's plans include a very large crushed rock storage made in circular bins of reinforced concrete, with a total storage capacity of 20,000 cubic yards.

The quarry will be equipped with the heaviest type of steam shovel fitted with a 5-cubic yard bucket and two standard gauge saddle tank locomotives for handling the cars, which will be 10 yards' capacity, and the quarry will also be equipped with large size churn drills.

ADOPTS PROFIT-SHARING PLAN.

The Petoskey Crushed Stone Co., of Petoskey, Mich., has adopted the profit-sharing plan. At the annual meeting the directors decided that each year the employees who have been with the firm during the preceding twelve months will receive a bonus in the way of a percentage of wages.

At first each man who has served that period of time will receive at the close of the year a half month's wages extra.

Eventually the plan will be carried out in detail, though of course on a smaller scale. The company has reëlected officers as follows:

President, S. L. Robinson; vice-president, E. R. Sly; secretary, treasurer and general business manager, Homer Sly. The directors are: H. B. Lang, Harry Hirshberg and F. R. Williams, Elk Rapids; E. R. Sly, Bay Shore; C. A. Whyland, Chicago; S. L. Robinson and Homer Sly, Petoskey.

CONTROLS LARGE OUTPUT.

The largest production of crushed rock, sand and gravel in southern California is controlled by the Los Angeles Stone Company, and its subsidiary companies which operates its main quarry at Brush Canyon, in Hollywood; a large sand and gravel plant at Tejunga, and a crushed rock quarry at Acton; also two quarries at San Diego, operated by the San Diego Stone Company, a subsidiary company. The combined capacity of these companies is 5,000 tons of material daily, and at the present time they are, and, during the past year have been, running almost to capacity. The offices of the company are located at 537 Consolidated Realty building, Los Angeles.

The new quarry company which took charge of the Connecticut Contracting Co.'s plant in Stanley Quarter, Hartford, Conn., is engaged in erecting a new plant there.

The Fall River Quarries Co., Hot Springs, S. D., was awarded the stone contract for a big church at Huron last week. This contract will amount to between $7,000 and $8,000.

The Michigan Limestone & Chemical Co., near Rogers City, Mich., has planned to double its output of rock the coming season. It will ship nearly 2,500,000 tons of rock which will be loaded on steamers and carried to blast furnaces.

Thomas H. Smith, of Sturgeon Bay, Wis., one of the largest quarry operators in northern Wisconsin, died suddenly while in his offices recently. Mr. Smith, who had been interested in the lumber business for many years, entered the stone business in 1892, when he opened large quarries at the mouth of Sturgeon Bay. During recent years he has been engaged in the crushed stone business, although he was interested in various other enterprises and had heavy land interests in California.

The Universal Crusher Co., Cedar Rapids, Iowa, has purchased all finished and unfinished crushers and elevators and an immense stock of repair parts for all machines from the Eureka Stone & Ore Crusher Company, of that city. The stock included Edgar Allen American manganese steel jaw plates, key wedges, toggle plates, all sizes of steel buckets, link chains, pulleys, etc. The Universal company now has a very complete stock of crushers which they are offering at reduced prices. They are mostly 1913 models.

The Weeping Water Stone Co., Weeping Water, Neb., whose holdings lie just east of town, commenced spring activities a few days ago. The force working on the first order, which is for rip-rap stone, consists of about fifteen men. Manager Frank Anderson states that this force will be increased very soon to about fifty men. He reports that he has prospects for the sale of a large amount of crushed stone to be supplied during the summer and had a contract for 10,000 tons to start with. The crusher will be started running within a short time. There is an abundance of good stone in the vicinity and the probabilities are that the resources will be developed more in the future than they have been. In addition to the activities of the Weeping Water Stone Co. a new quarry west of town is to be opened this spring on the site of one that has been doing only a small business. A large crusher will be installed and other improvements made by outside capital. The quarry will have an output of ten to fifteen cars a day and will employ about fifty men, and operations will include many new methods.

Installs Electrical Equipment.

The Casparis Stone Co. is now at work changing its equipment to the Woodford electrical equipment at its Kenneth quarry and this change will necessitate a very heavy expenditure, amounting at least to $200,000 and perhaps a great deal more. The electrification of this great bee hive of industry means the discarding of a great mass of what was once valuable machinery and equipment.

This great institution annually ships many thousands of cars of crushed limestone to the great centers of industry like Chicago.

The current is to be furnished by the Logansport (Ind.) Heating Co. which was given a franchise by the city recently, the light as well as power for the quarries being furnished by the heating company. The heating company will at once proceed to install its electrical plant, the cost of which would not be short of $35,000.

Notice has been issued by the Sandusky Portland Cement Co., Sandusky, O., that "the Medusa waterproofing patent has been sustained, and that in the United States district court, Northern district of Illinois, on February 13, 1914, a decree was entered declaring the Newberry Patent, No. 851,247, to be good and valid; that the McCormick Waterproof Portland Cement Co. and S. T. Sjoberg infringed said patent and are perpetually enjoined from making or selling waterproof cement or carrying on the process described in said patent; that the complainant shall recover the damages resulting from said infringement. Suits against other infringers have been begun and will be vigorously prosecuted."

The R. B. Tyler Co., Louisville, Ky., whose rock-crushing and handling plant at Ducker's Station, Ky., 18 miles from Louisville, on the Southern Railway, was destroyed by fire some time ago, is rebuilding the plant, which will be almost entirely of concrete construction, save for the sides of the bins above the hopper sections. The foundation walls supporting the bins will be 19 feet high, to enable freight engines to run under them with cars for loading. A 150-h. p. engine and a No. 6 Gates crusher will be used, giving the plant an estimated capacity, with the screening equipment which will be installed, of 600 to 700 yards of stone a day. Work has so far progressed that the company expects to have the plant in operation by April 15, in ample time for the greater part of the season's concrete work.

The Bradley Pulverizer Co., 92 State street, Boston, Mass., advise that they have just received an order from the Standard Portland Cement Co., of Leeds, Ala., for five Giant Griffin mills, which will be used on the clinker-grinding end of the new addition at Leeds, Ala. This order is the outcome of the satisfactory service given by one Giant Griffin mill which was installed three years ago, hence repeat orders are the most conclusive proof of satisfaction. The Bradley company also state that they have secured a repeat order from the Riverside Portland Cement Co., Riverside, Cal., for four new Bradley Hercules mills. The Giant Griffin mills which are being shipped to the Standard Portland Cement Co. will be used for pulverizing clinker. They are recognized as one of the most economical and satisfactory pulverizers of clinker ever used in the manufacture of cement. The Bradley Hercules mills are to be used for breaking down clinker for tube mill feed.

Indiana Stone Club Changes Name.

New Officers Elected and Plans Laid for Greater Expansion.

At a meeting of the Indiana State Stone Club, held March 20, 1914, an amended constitution and by-laws was adopted unanimously by the club.

This constitution provides that the name shall be changed to "Indiana Crushed Stone Association." The constitution also provides that a permanent secretary shall be employed to represent the crushed stone interests of Indiana, and to institute a publicity bureau along the same lines as followed by adjoining states.

The officers elected for one year are: President, Herman Evans, LaFayette, Ind.; vice-president, E. B. Taylor, Greencastle, Ind.; treasurer, R. N. VanWinkle, Indianapolis, Ind.; secretary, F. W. Connell, Indianapolis, Ind.

The Conewago Trap Rock Co., Williamsport, Pa., has filed an increase of stock from $75,000 to $125,000.

The Westport Stone Co., Westport, Ind., reports a good year in 1913, with prospects for plenty of work in 1914.

The New Britain Trap Rock Co., Hartford, Conn., is contemplating the erection of a stone crusher plant, to cost $5,000.

Owen W. Owens' Sons, Granville, N. Y., has been incorporated to operate a stone quarry; capital stock, $120,000; D. O., Robert, O. and W. O. Owens.

The Goodin, Brown & Co., manufacturers of ballast and limestone fertilizer at Upton, Ky., filed articles of incorporation recently with a capital stock of $6,000. John M. Goodin is president, W. T. Brown secretary and treasurer and E. G. Steubing superintendent.

A valuable deposit of limestone that is apparently unseamed and of an unknown depth, has been discovered on the George Matthews farm, in the eastern part of Benton county, Indiana. The deposit was uncovered by a dredge boat being used to widen the channel of Pine Creek.

C. L. Steinbaugh, secretary of the Indiana Fertilizer & Stone Co., the company which recently took over the quarries near Waveland, Ind., says the stone quarried has proven of exceptional value as fertilizer when crushed, and that the company expects to do more business with farming interests than with users of crushed stone.

The K. I. L. & T. Co. quarries, Marblehead, O., which have been running for the last few weks on an eight-hour schedule, have now commenced running ten hours a day, and it is believed that the crusher and other works will soon be running twenty-four hours a day. Big shipments are now being made to Cleveland, Lorain and other blast furnaces, following the resumption of activities in the steel and iron trade.

Owing to the present rapid growth of the cities in the state of North Carolina, it is reported that increased building and road making has created a steady demand for broken stone in the state, particularly in and around the city of Winston-Salem.

A large stone property is being offered for sale in this district, which is on the direct line with the cities of Goldsboro, Raleigh, Greensboro, Durham and Winston-Salem. It is stated that the demand for broken stone in these places alone will consume the entire output of the plant. Further information may be obtained by addressing A. F. Mersick, in care of E. Z. Force Pump Co., Winston-Salem, N. C.—(Advertisement.)

Spar Light Co., Boston, Mass.; mines and quarries; capital $75,000. Incorporators: H. G. Landry, Boston; J. W. Chisholm, Melrose.

Bloomington Crushed Stone Co., Bloomington, Ind.; $10,000; to deal in crushed stone. J. J. Campbell, Bloomington; A. Dobson, R. Rogers.

William C. Hinkley, 55 years old, superintendent of the Norcross Quarry Co., Branford, Conn., died at his home in Stony Creek, March 3, after an illness of seven weeks of dilation of the heart.

The Union Mining Co., Baltimore, Md., has issued a little booklet on "Flue Linings and Other Fire Clay Products." Illustrations in colors are shown, accompanied by appropriate description, with price list.

The Weeping Water Stone Co., Weeping Water, Neb., has been organized and will open up with a good-sized force in the spring and develop to the fullest extent the rich resources of the stone-bearing hills in that neighborhood.

Owing to continued open winter weather which has been prevalent throughout the western section of Pennsylvania, the Reading Stone Quarry Co., of Reading, Pa., operating a large limestone quarry at Laurel Dale, and which suspended work several weeks ago, has resumed operations with a small force of men and expects to increase the working force from time to time during the next several weeks, as weather conditions warrant, until the complete previous number of men are again engaged at the works.

TRADE LITERATURE.

The C. O. Bartlett & Snow Company, of Cleveland, Ohio, has recently issued catalogue No. 42, illustrating and describing their crushers, pulverizers and feeders. The Bartlett concern has been manufacturing these types of machinery for more than 25 years, and during that time they have achieved an enviable position in the crushing field by reason of the high quality of the machinery which forms their output. The catalogue is handsomely gotten up and illustrates and describes very clearly the various types of machinery manufactured by them, as well as showing the detailed parts of the machines.

* * * *

The Eberling Cement Machinery Company, of Cleveland, Ohio, has recently issued a catalogue descriptive of cement products machinery. The booklet is handsomely illustrated with reproductions from photographs of the machines and their products, also residences, barns, greenhouses, garages and foundation work and other structures in which cement tile was employed. The Eberling cement tile is a well-known product throughout the country and needs no introduction as to its qualifications. There is a constantly increasing use of cement for building construction, and the era of manufacturing cement products has but begun.

* * * *

The Kennedy Manufacturing and Engineering Company, 120 Liberty street, New York City, has just issued a very elaborate catalogue pertaining to cement-making machinery. The company manufactures the well-known Kennedy gyratory crusher, standard discharge. This crusher is amply illustrated and described in the booklet, both in the finished state and in detailed diagrams. A discussion on the manufacture of cement is contained in the fore part of the catalogue, which is quite concise and interesting. In addition to cement-making machinery, the company manufactures stamping mill machinery and accessories, gold and silver mill machinery, etc.

"Bragstad Concrete Machinery & Construction," issued by the Bragstad Concrete Machinery Company, Canton, So. Dak., shows illustrations of Bragstad unit reinforced concrete block machinery, automatic tampers, concrete mixers, etc. Also views of various types of structures in which concrete blocks have been used.

* * * *

"Flue Linings and Other Fire Clay Products" is the title of a little booklet issued by the Union Mining Co., with general offices at Baltimore, Md., and manufacturing plant at Mt. Savage, Md. To supplement the descriptive matter, flue linings, thermic hollow clay tile fireproofing, fire brick, etc., are illustrated in their natural colors.

* * * *

"Northern Cranes," known as Catalog No. 26, issued by the Northern Engineering Works, Detroit, Mich.; illustrating the electric traveling cranes, hand power traveling cranes, electric and pneumatic hoists which the company manufactures, also overhead tracks systems, bucket handling cranes and railway cranes. This is a general catalog which contains references to various bulletins which more fully explain the concern's numerous designs of cranes.

* * * *

"S-A Belt Conveyors," issued by the Stephens Adamson Mfg. Co., Aurora, Ill., contains 370 pages and is one of the most pretentious catalogs ever published on the subject of belt conveyors by the Stephens Adamson concern. Complete information is given on the use of "S-A" belt conveying systems in crushing stone, clay, gravel, sand, cement, clinker, dry plaster, lime and numerous other plants; also suggestions in designing belt conveyors, etc. The catalog is amply illustrated.

* * * *

A very interesting booklet has been issued by the Northwestern Expanded Metal Company, Old Colony Building, Chicago, Ill., which shows in detail the construction of silos, giving the reinforcement required in height up to 36 feet and in diameter from 12 to 30 feet. The booklet is amply illustrated by drawings, reproductions from photographs, tables, etc., showing the inside and outside scaffolding, raising and setting the door frames, plastering; in fact, showing the entire work from start to finish.

* * * *

From the American Steel & Wire Company comes a handsome book entitled, "Reinforced Concrete Pavements and Roadways" wherein the story of the Triangle Mesh Wire reinforced type is fully set forth in most informative fashion. As the engineers of this concern are responsible in large measure for the successful examples of the best type of concrete roads and pavements, the story of their work is of marked value. In all the recent literature of the permanent pavement there is no more interesting compilation of experience and practice than this book and every engineer and contractor should possess himself of a copy at once.

* * * *

"Marble Mosaic Floor Tile" is the title of an extremely handsome and elaborate catalogue just issued by the Frank A. Seifert Plastic Relief Company, 2627-2631 Dayton street, St. Louis, Mo. The catalogue is illustrated in the natural colors of marble and granite mosaic tile, which are manufactured from Portland cement and marble and granite chips pressed into different shapes by hydraulic pressure, then steam cured and further water cured for such a time until the maximum strength of the cement is obtained. Many smaller illustrations are contained showing the various effects which may be secured. This catalogue will prove both interesting and valuable to any one interested in ornamental floor tile.

Sand-Lime Brick

A Wisconsin Sand-Lime Brick Plant.

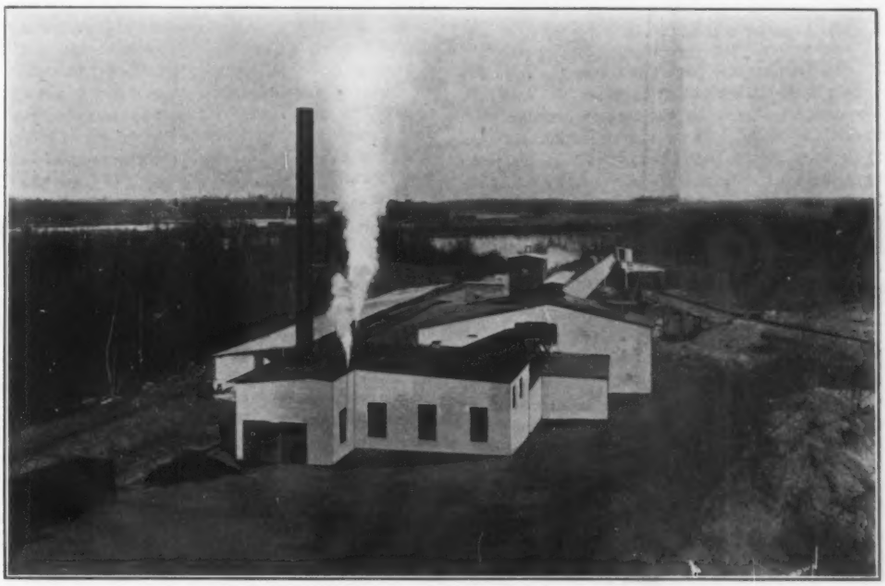
The accompanying illustrations show the plant of the Acme Brick and Sand Co., located near Barton, Wis., with the main office at Milwaukee. This plant has just been remodeled and they are now making a hard-pressed sand-lime brick to compete with the common clay brick of the locality. They also make pressed face brick in red, brown, grey and buff colors.

The sand used is a clean and sharp bank sand, containing a large amount of silica and very little gravel. The bank is composed of several stratas of different size sand, evidently meant by nature for just this purpose, so that the sand going into the brick is well graded. The lime used in the manufacture of the brick is a high calcium lime.

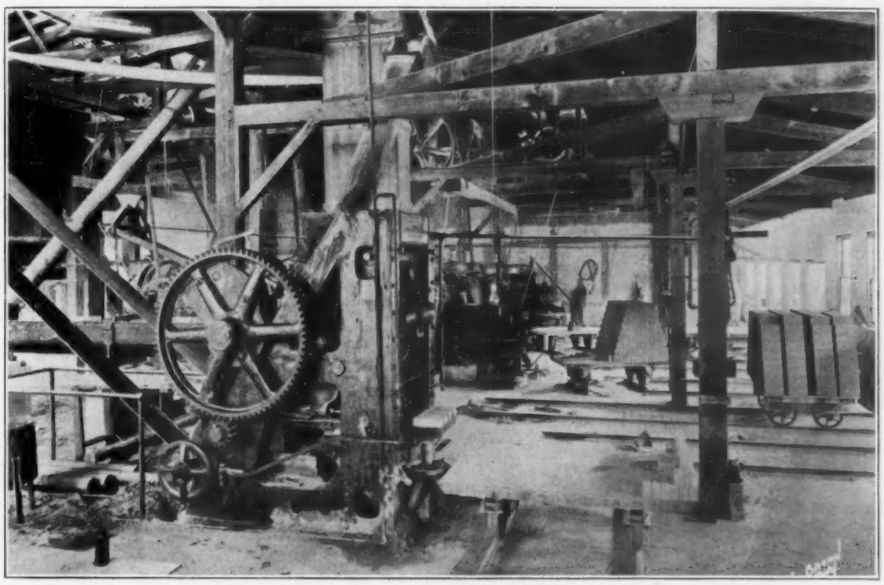
The sand is brought into the building with a drag line scraper which deposits it through the roof and it is immediately screened, the tailings falling into a dump car which is emptied once each day, as there are but few tailings. The clean sand falls into a large pile in the building, next to the preparing machine.

The lime is unloaded directly from the car into the hydrating machine as it comes from the kiln in large lumps. These can be hydrated just as easy as the smaller pieces. This machine takes a charge of 300 pounds of lime about every five minutes, the necessary water is then added and the lime and water is held in one of the two hydrating drums until hydrated, when the powdered hydrate is let out of the drum and the next charge is let in.

The hydrate is then run through the finishing trough and into a Raymond pulverizer which, after separating the hydrate from the core, deposits it finally into the storage bins. The batch mixer sets conveniently between the sand deposit and the hydrate bins, the hydrated lime and sand are proportioned here and mixed in batches of enough material for 300 brick and are mixed dry, a batch every three minutes, and is then let into three differential mixers where sufficient moisture is added and the material is then run into the presses. If colored brick are to be made, color is added to the batch mixer. With this system the control of the materials going into the batch is perfect, insuring a uniform product all the time.



FACTORY OF ACME BRICK & SAND CO., MILWAUKEE, WIS.



VIEW OF THREE PRESSES, ACME BRICK & SAND CO., MILWAUKEE, WIS.

SAND-LIME BRICK FACTORY IN INDIA.

[Consul Henry D. Baker, on special commercial service in India.]

A factory for making bricks for the Bombay market from a mixture of sand and lime is soon to be started by the Bombay Brick & Tile Manufacturing Co. (Ltd.), which has lately been organized for this purpose with its capital stock oversubscribed. As ordinary Bombay bricks are of low quality, it is thought that the sand-lime bricks will find a ready market. The new company holds valuable Government concessions, insuring a plentiful supply of sand and lime at low cost. The factory will be situated near Marve Bunder in the Bombay Presidency, and transport to Bombay will be by sea.

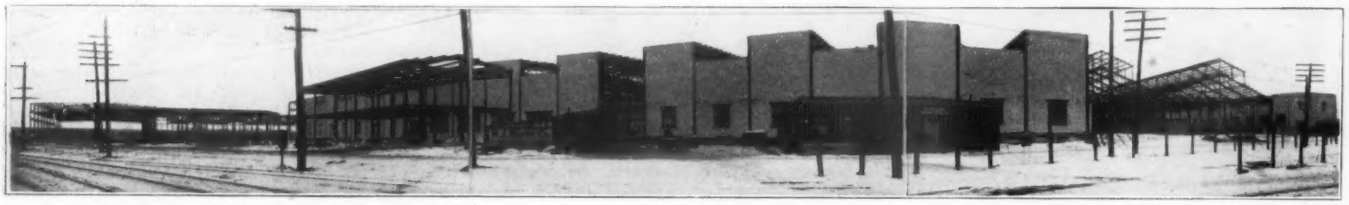
The bricks will be made from slaked lime and sand and finished by the steam-hardening process under high pressure that is said to have been first tried in the United States about 1901. Indian Industries and Power of Bombay for September, 1913, states the characteristics of the sand-lime brick that will be made by the new company, as follows:

On being exposed, the bricks harden considerably. Superior qualities make an excellent material for use in sewers, foundations, and other places where they are exposed to the action of moisture. The bricks possess great crushing strength and therefore fulfill the most essential requirements of a first-class building material. The bricks absorb, weight for weight, much less water than the great majority of clay bricks. They not only possess very slight heat conductivity and low coefficient of expansion, but are also very refractory. The material is therefore an excellent one where fire-resisting qualities are required.

At the annual meeting of the stockholders of the Sacramento Sandstone Brick Co., Sacramento, Cal., it was announced that the sales in 1913 were three times those of 1912. The following officers and directors were elected for the coming year: A. G. Metz, president; E. A. Palm, vice president; S. L. Smith, secretary; G. W. Bostwick, treasurer, and Robert Lloyd.

DELIVERIES SHOULD BE SYSTEMATIZED.

"The fair way to figure just what a motor truck will accomplish in comparison with horse-drawn vehicles," says G. H. Pearson of the McDuffee Automobile Co., "is to take the ground-covering and tonnage capacity of each and, from that basis, arrive at the cost per ton mile. When this is done, no one engaged in a business where delivery covers any considerable radius, can fail to reach the conclusion that he ought to use trucks. When a truck does not show a saving over horses, it is either a case where the business is not big enough to keep the truck running or where delivery is not properly systematized. In a great majority of cases, providing a proper system is adopted, a truck will accomplish the equivalent of at least three horse-drawn vehicles. KisselKar trucks are doing it all over the country."



PLANT OF SYRACUSE CRUCIBLE STEEL CO., SYRACUSE, N. Y.

A Mammoth Structure of Sand-Lime Brick.

The picture on this page illustrates the Syracuse Crucible Steel Co.'s plant at Syracuse, N. Y., which when completed, will be the largest crucible steel plant in the world. There are two others in that city known as the Sanderson and the Halcomb plants, both of which are controlled by the Crucible Steel Co. of America.

The Paragon Plaster Co., of Syracuse, is furnishing the sand-lime brick, which will run into the millions, and other materials for this group of buildings.

Notes on Sand-Lime Bricks.

Sand-lime bricks are made of sand or crushed sandstone and lime, mixed together in a moist state and pressed into bricks, the latter being hardened by exposure to steam under pressure so that the bricks when sold have a minimum crushing strength of 2,000 lbs. per square inch. In Great Britain there is no legal minimum of strength, says Brick & Pottery Trades Journal, of London, but on the Continent the figure just mentioned is the official minimum, and it is generally adopted in specifications of important works in this country.

Recent specifications also require other definite properties such as density, porosity and proportion of soluble silica. One specification recently demanded the following limits:—

Density, 0.6—0.8.
Porosity, 0.25—0.37.
Water absorption:—
Between 13 and 21 per cent by weight.
Between 21 and 35 per cent by volume.
Minimum Soluble Silica, 5 per cent.

The term density was here stated to mean the ratio (d) between the volume weight (v) and the specific gravity (s) and the porosity (or converse of density) $u = 1\text{-}d$ where $d = V \div S$. The volume weight (v) is the weight of a unit volume excluding the pores, whilst the specific gravity is the weight of a unit of volume excluding the pores. This use of the term porosity must not be confused with the general use of the word in the sense of water-absorbing power.

Dr. Burchartz has shown that the soluble silica and the density in lime-sand bricks are closely related and that the larger the proportion of soluble silica the less porous will be the bricks. The Dutch commission on lime-sand bricks reached the conclusion that the quality of the bricks cannot be determined by the proportion of soluble silica in them, but is dependent on its distribution. The latter must be ascertained by a microscopical investigation.

These limits will have to be made much narrower if they are to be any use; at present their scope is so wide that it will permit the use of weak stones or bricks as well as of strong ones. Moreover, what is needed is a test that can be applied without destroying the bricks. The crushing test merely shows that certain bricks are of desired strength; as these are destroyed in the test they cannot be used again, and it is by no means a fair argument to suppose that because selected bricks in a stack are good that all are good. Hence the desirability of a test which can be applied to bricks without in any way damaging them. The density and water absorption tests appear to be of this character, and if the limits were made narrower it is probable that they would be sufficient for all ordinary purposes, though the makers might still continue to make crushing tests for their own guidance, and to have tests of the proportion of soluble silica made in order to control the efficiency of their treatment.

As the sand grains do not naturally adhere to each other, it is only the amount of silicate uniting these grains together which gives the bricks their strength. Not the total amount, however, but the amount distributed to the best advantage in the form of a thin coating of silicate around each grain of sand. This can be observed with a petrological microscope far better than can be ascertained by any kind of chemical test, and it appears desirable that some form of miscrosopical examination should be made an essential feature of all tests of lime sand bricks.

Some localities are particularly adapted to the manufacture of lime sand bricks, but if the prejudice in favour of clay bricks is to be overcome, the makers of lime-sand bricks will have to convince builders and others by means of comparative figures. They must also be prepared with some sort of guarantee, and then they will find that, in the right districts, there is ample opportunity for making a good profit from lime and sand, and may even be finding themselves in agreement with the proverb that "sand in the right place is worth more than gold."

The Range Sand-Lime Brick Co. will commence operations this spring at Pengilly, near Swan Lake, Minn. This plant is equipped with the latest machinery for the manufacture of building and ornamental brick. The new industry will be a big boost for the range, as it uses range material and is developed by range capital.

NEW CATALOGS.

A new booklet entitled, "Concrete Alleys," published by the Universal Portland Cement Co., has just come off the press, and is now ready for distribution. It is a convincing argument, consisting of a few pages, profusely illustrated.

* * * *

H. W. Caldwell & Son Company, Western avenue, 17th to 18th streets, Chicago, Ill., has issued Catalog No. 38, which is a very considerable effort in the printing line and is probably the best and most pretentious that this company has ever issued. The catalog covers in complete form the elevating, conveying and power transmission line of machinery manufactured by the Caldwell company. Full information on screw conveyors, gears, bearings, etc., is contained in the book and in its 800 pages are shown many illustrations and tables to make more clear the subjects discussed. Copies will be sent free to interested parties.

* * * *

"Ajax—A New Troy" is the title of a pamphlet just issued by the Troy Wagon Works Company, Troy, Ohio, descriptive of the new dump wagon which the Troy Company is now manufacturing.

"Reliable Power," issued by the Novo Engine Co., Lansing, Mich.; this catalog is shown as Blue Novo Catalog No. 14 and is a very thorough presentation of gasoline engines and outfits. The booklet contains 66 pages and is replete with interesting information; it is amply illustrated.

* * * *

"The P. & H. Excavator," issued by Pawling & Harnischfeger Co., Milwaukee, Wis.; this booklet contains 18 pages and is descriptive of the excavators manufactured by this concern. A number of illustrations are shown and also a detailed drawing of the wheel and method of digging the ditch.

* * * *

"Champion Crushing and Quarry Machinery," issued by the American Road Machine Company, Kennett Square, Pa.; descriptive of the "Champion" crushers, revolving screens, belt conveyors, discharge carriage, winding drums and dump cars, rock drills, etc., manufactured by the American Company, for which the Good Roads Machine Company, Inc., Kennett Square, Pa., is the selling agent.

* * * *

"Blast Hole, Well Drilling, Boring, Prospecting Machinery and Tools," issued by the Loomis Machine Company, Tiffin, Ohio, known as circular No. 80, contains complete information on and illustrates the traction or self-propelling type of "Clipper" blast hole drills driven by steam, compressed air, gasoline or electric power. This catalog will be found extremely useful to those interested in any way in quarry operations.

* * * *

"Fireproof Construction to Compete with Wood" and "How to Build with Van Guilder Hollow Wall Machines," issued by the Van Guilder Hollow Wall Co., Rochester, N. Y.; the former contains illustrations of the hollow wall machines for manufacturing double concrete walls having a continuous air space and also single hollow concrete partitions. Many structures are shown in which the blocks made with the Van Guilder machines are utilized. The latter booklet contains information on how to build with Van Guilder hollow wall machines. It is amply illustrated with tables, diagrams, etc., to make clear the meaning of the text.

* * * *

"The Shearer & Mayer Dragline Cableway Excavators" contains 50 pages of matter descriptive of the Shearer & Mayer dragline cableway excavators, supplemented with pictures to illustrate this class of excavating machinery and the many uses to which the excavator can be put for the mechanical handling of material. The excavator is being extensively used for handling material which cannot be economically handled with ordinary boom line or steam shovel excavators, and with this cableway excavator it is said to be possible to dig over areas exceeding 200 to 800 feet and convey the material direct to spoil piles or lift it into bins or hoppers in one operation with a double-drum hoist. The machinery was primarily designed for digging material over long spans from under water. Sauerman Brothers, Monadnock Block, Chicago, Ill., have charge of the sales of this excavator.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

:: THE :: BOURSE

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED—A salesman acquainted with Ohio Builders' Supply dealers and who is employed at the present time. Prefer a plaster salesman. Would consider a cement or hydrated lime salesman. Permanent position and good salary. Address KELLY PLASTER CO., Sandusky, Ohio.

EMPLOYMENT WANTED

WANTED—POSITION

as superintendent or foreman of gypsum or lime mill; experienced; good reference.
Address X. Y. Z., care ROCK PRODUCTS.

WANTED POSITION—As superintendent of rock crushing plant. Experienced; best of references.
Address Box 979, care ROCK PRODUCTS.

WANTED—Position as manager or superintendent of cement or lime plant. Have had fifteen years' experience and am thoroughly conversant with modern methods of production. Address Box 972, care ROCK PRODUCTS.

STONE quarry expert wants position as superintendent or foreman—go anywhere. Also will operate quarry or crusher plant by contract, furnishing experienced quarry gang, saving 8 to 10% on the operating cost.
Address Box 976, care ROCK PRODUCTS.

CARS & LOCOMOTIVES FOR SALE

CARS.

156—5 yard 36-inch gauge all steel Peteler 2-way dump cars, built 1910 and '11. Thoroughly overhauled. Practically good as new. The best dump cars we have ever seen. We are putting these cars on the market at bargain prices. Write us for further information.
Eight 36-inch gauge double-truck flat cars.

LOCOMOTIVES.

Eleven—12x16 Porter four-wheel saddle-tank 36-inch gauge locomotives, built 1910 and '11, and used until the end of the season 1911; practically new.
One—11x16 Pittsburg four-wheel saddle tank, 36-inch gauge.
Thirty-five 9x14 Porter four-wheel saddle tanks, 36-inch gauge. Most of these have steel cabs and were built since 1902.

STEAM SHOVELS.

Three—Marion Model 60 steam shovels, in excellent condition; ready for immediate shipment.
One—Bucyrus Model 65, with Model 70 front and applied. Thoroughly overhauled.
Two—Marion Model G shovels, in first-class condition.
Also big lot steam shovel repair parts, and other contractors' equipment.
MINNESOTA EQUIPMENT CO., Hibbing, Minn.

BUSINESS OPPORTUNITIES

INDIA, CHINA, JAPAN, ETC.

Manufacturers desiring to place their goods to advantage in these countries, please note:
Advertiser leaving for the far East in May and will be pleased to hear from interested concerns as early as possible. Address BOX 983, care ROCK PRODUCTS AND BUILDING MATERIALS.

Wanted to Lease—Sand or gravel property, or would buy established business. Eastern location preferred.
Address BOX 978, care ROCK PRODUCTS.

Wanted—Information regarding good cement plant for sale. Send description.
NORTHWESTERN BUSINESS AGENCY,
Minneapolis, Minn.

Quarry superintendent wants to meet a quarry owner who would take a man that would invest some capital in a quarry proposition to act as superintendent and engineer. Have had 25 years' experience in this line with some of the largest concerns in the country, both in executive and operating. Good references. Will operate plant on percentage basis.
Address BOX 982, care ROCK PRODUCTS.

Young man (28), married, excellent education, with about five years' experience with contractors on heavy construction work, seeks permanent position with sand and gravel, or crushed stone concern. Would invest in satisfactory proposition after preliminary engagement. Eastern location preferred.
Address BOX 977, care ROCK PRODUCTS.

CAPITAL WANTED TO EXTEND BUSINESS.

Limestone quarry, equipped with crusher and located favorably for the delivery of road material and concrete aggregate to an exceptionally wide market, seeks to interest additional capital for the purpose of developing the property further so as to branch out into the lime business and increase the present volume of operations. Rock is extremely pure lime carbonate and quarry opening of such extent as to fully exhibit its immense value for development. The market and freight rates are favorable for an immense extension of the business. Only those with the cash for a prompt business transaction wanted to open negotiations.
Address Box 973, care ROCK PRODUCTS.

FOR SALE—A newly discovered isolated limestone hill covering seventy-five acres, east of Blue Ridge mountains and 100 miles east of regular limestone region, in Piedmont section of eastern middle south. Quarry opened, 88% carbonate lime, no magnesia. Experimental lime plant erected. Address Box 971, care ROCK PRODUCTS.

BLACK MARBLE QUARRY.
A Good Business Opening.

The owner of an extensive Virginia deposit of black and gray marble would like to sell a half interest to an experienced man.
The marbles are adapted to high grade monument, column, interior finish and other work. Several carloads have already been sold and purchasers have given duplicate orders.
The quarry is on the Southern Railway and has good shipping facilities.
If interested refer to file No. 46,543 and write
M. V. RICHARDS, Land and Industrial Agent,
Room 371, Southern Railway. Washington, D. C.

SAND.

The largest, purest silica sand deposit in the world; coarse, sharp, white; analyzing 99.90% silica, balance moisture; on railroad, near water transportation. If interested in buying same, write R. L. MARTIN, Ocala, Fla.

N. H. PATNOE, BUFFALO, IOWA, makes a specialty of erecting modern stone crushing plants and developing quarries. Thirty years' experience in this line; open for engagement February 1st. References.

CLAYWORKERS CASTINGS GREY IRON.

Foundry Castings—Prompt delivery. WM. E. DEE CO., Foundries & Machine Shops, Chicago and Harvey, Ill. All kinds of clay-workers castings, dies, dryer cars, grate bars, etc. Main office, 30 N. LaSalle St., Chicago, Ill.

PLANTS FOR SALE

35,000 capacity sand-lime brick plant complete with engine, boilers, mixers, dryers and all equipment in good condition—plant operated only three years. Must be sold at once. Inquire JAMES T. DROUGHT,
Railway Exchange Bldg., Milwaukee, Wis.

For Sale—Property, including site of the Red Wing Brick Co., located at Red Wing, Minn. Plant consists of two Boyd special sand-lime brick presses, two cylinders and full equipment for 40,000 sand-lime brick per day. Correspondence solicited.
RED WING BRICK CO., Red Wing, Minn.

For Sale—Lime plant, 12 miles from Toledo, Ohio, on railroad, consisting of 10 acres best limestone, one large modern kiln, with shed; engine and boiler, barn, cooper shop, powder house. Reason for selling, owner in other business. Will sell outright, or take stock in new organization for part interest. Reasonable terms. A bargain for buyer.
Address B. E. MOSES, Lynchburg, Ohio.

FOR SALE—Fully equipped high calcium limestone property. Three patent kilns, new crusher, electrical equipment, eastern Pennsylvania, good Market, chemical and fluxing trade. Good opportunity for the right man.
Address Box 968, care ROCK PRODUCTS.

MACHINERY WANTED

WANTED—No. 5 gyratory crusher, McCully, Gates or Kennedy; belt conveyor and rear end dump cars.
Address FRED McCULLOUGH, Iowa Falls, Iowa

MACHINERY FOR SALE

For Sale—One Shearer & Mayer Dragline Bucket Excavator with 35 h. p. Flory DD engine. This outfit is complete and was only used two months.
Address ILLINOIS KAOLIN CO., Anna, Ill.

STEAM ENGINES FOR SALE.

One Brown engine right-hand drive 16x42, belt wheel 14'x24". This engine is in first-class condition, equipped with metallic packing.
One Buckeye engine 15x30, right-hand drive, belt pulley 9'x18". This engine is in good working condition.
One slide valve engine 12x20, left-hand drive, belt pulley 8'x16", in fair condition.
One Duplex fire pump Laidlow, Dunn & Gordon, 18-10-12. This pump is equipped with brass rods; in first-class condition. Will sell cheap.
THE ELYRIA BELTING & MACHINERY CO.,
Elyria, Ohio.

DO YOU BUY EQUIPMENT?

If so write for our reference

Booklet of Second-Hand Machinery
52 Pages—1000 Bargains

Hoisting Engines, Crushers, Locomotive Cranes, Locomotives, Relaying Rail, Steam Shovels, Drills, Buckets, Etc.

WILLIS SHAW MCHY CO.
New York Life Bldg., CHICAGO, ILL.

IMPORTANT! We ask the cooperation of our advertising patrons in the matter of getting changes of copy for their ad into this office at an early date.

Advertising copy for issue of the 7th should be mailed us not later than the 25th of the month preceding.
Changes of copy for the 22nd issue should be mailed not later than the 10th of each month.
In complying with this request you will permit of ample time in which to have your ad set and receive proof for O. K., or corrections.

The Francis Publishing Company - 537 So. Dearborn St., Chicago, Ill.

National Builders' Supply Association

Officers.

President—Edw. K. Cormack, Chicago.
Treasurer—John J. Voelkel, New Orleans.
Secretary—L. F. Desmond, Chicago.

Directors.

J. H. Allen, Lincoln, Neb.
Charles Warner, Wilmington, Del.
C. N. Ray, Detroit, Mich.
W. F. Jahncke, New Orleans, La.
C. M. Kelly, Providence, R. I.
W. W. Coney, Cincinnati, O.
L. W. Macatee, Houston, Texas.
D. J. Kennedy, Pittsburgh, Pa.

The National Builders' Supply Association is now starting out on what promises to be the banner year of that organization, and one that will see at its close a very largely increased membership, and, it is confidently expected, a record of considerable good accomplished for its members.

At the outset, in order to supply a point of centralization, as it were, headquarters have been opened up in the Chamber of Commerce Building, Chicago, and will be in charge of L. F. Desmond as resident secretary, in whom, to use the words expressed in the Association's Bulletin No. 1, the members will find a courteous, experienced gentleman, ready to serve them night and day.

It is intended that Association headquarters will eventually contain a complete library on everything pertaining to building materials, and it is also proposed to make it serve as a bureau wherein manufacturers desiring agencies and dealers looking for agencies in various lines can be brought together for their own mutual benefit.

As will be noticed from Association Bulletin No. 1, which has been sent to all of the members, it is the intention to promote a contest in the securing of new members during the coming year, by offering as a prize to the individual who brings into the Association during that time the largest number of applicants, a silver loving cup. The rivalry which will naturally follow the fight for possession of this cup is bound to arouse enthusiasm in the Association and an interest in its work, and speaks well for hopes of a large increase in membership.

The members will at all times be kept well informed of the work of the Association and what it proposes doing by means of monthly bulletins, and it is intended through these bulletins to cultivate an acquaintance with each individual member which will result in his taking an active interest in all the work the Association is doing, and to readily favor it with his suggestions, and there is no doubt but what this interchange of thought can only result in many profitable suggestions being uncovered for the benefit of all.

Every manufacturer and dealer in the building material line should now put forth every effort to assist the Association in the work which it has started out to do, and if any of our readers are not members of the Association already, we sincerely trust that they will take advantage of the application below and send it in direct to President Cormack. The membership fee is but $10.00 per year, and you can rest assured the benefits to be derived will make this one of the best investments you ever made.

The Association Bulletin,
Number One.

NATIONAL BUILDERS' SUPPLY ASSOCIATION
Incorporated
Headquarters
Chambers of Commerce Building
Chicago

So that the Association may take its rightful place among kindred trade associations, a permanent secretary has been engaged and offices rented at the above address.

This will be association headquarters for 1914, and the members are urged to write freely to headquarters regarding their troubles, resquests for information, and, above all, with their suggestions.

In Mr. L. F. Desmond, our new secretary, the members will find a courteous, experienced gentleman, ready to serve them day and night.

During the coming year we have many plans and ideas to be carried out for the good of the building supply man, but before we can accomplish the things it is desired to do, it is necessary that our membership be very largely increased.

The voice of many will be heeded where the voice of few pass unnoticed.

Bearing this in mind will you not assist in securing new members? And, so that a little friendly rivalry may be started along these lines, your board of directors have authorized that a silver loving cup, suitably engraved, be presented at our next convention to the member, active or associate, who shall bring in the greatest number of recruits during 1914.

This contest is open to all, with the exception of the executive officers and directors, and the only stipulations are that the membership fee must accompany the application, which must be secured by a member in good standing.

Enclosed are a few application blanks, and a bill for your 1914 dues.

In remitting your dues by return mail you show that your heart is in the right place, and you will get into good standing for becoming a possible cup winner.

EDW. K. CORMACK,
March 4, 1914. President.

Association Notes.

The following field secretaries have been appointed since the last issue: B. L. Swett, Allentown, Pa.; E. A. Foster, Boston, Mass.; Joshua Speed, Detroit, Mich., and Geo. A. Olsen, Chicago, Ill.

NATIONAL BUILDERS' SUPPLY ASSOCIATION.
Chamber of Commerce Bldg. **Chicago, Ill.**

Application for Membership.

The undersigned being heartily in accord with the principles and aims of the National Builder's Supply Association does hereby apply for membership:

Firm name.....

Signed by.....

P. O. Address.....

Date.....

The following applications for membership have been received:

Alton Brick Co. (Eben Rodgers, secretary), Alton, Ill.
Bonner & Marshall Brick Co., Chicago, Ill.
Duluth Builders' Supply Co., Duluth, Minn.
James Freyer, Chicago, Ill.
Henry Frerk Sons, Chicago, Ill.
Independent Coal Co., Kenosha, Wis.
P. Flannery & Son, East St. Louis, Ill.
Jamestown Paint & Varnish Co., Jamestown, Pa.
Thomas Moulding Brick Co., Chicago, Ill.
Mayville White Lime Works, Mayville, Wis.
A. H. McCarrel, Augusta, Ga.
Nast Bros. Lime & Stone Co., Marblehead, Wis.
Standard Material Co., Chicago, Ill.

Chicago Retail News.

Season Opens Without Exceptional Rush—Dealers See Indications of Good Demand in All Lines.

In the Chicago market for all lines of building materials the Spring season has opened without extraordinary rush of orders, yet the present steadiness is more of an assurance for a good season than had been anticipated. The most noteworthy element in the realms of the dealers is the fact that the smaller contractors will be late in getting started, and that this will have the effect of more evenness in demand for different staple products. This condition should prevail until the season arrives at its more advanced stages. Present steadiness of the market is extensively appreciated by the dealers, inasmuch as it gives more opportunity to "cast about" for the orders that are to be awarded as the season advances. According to the most authentic reports the demand for brick and cement will exceed that of last year in the local market. Promotional work by the manufacturers during the off season is already a measure of encouragement to dealers in every section of the city, as it becomes more apparent that prospective buyers are inclined to ask for suggestions on the relative merits of products advertised by the manufacturers—everything from cement to roofing. The local dealers thus "get the edge" as soon as the work commences and are in a position to show what they "have in stock" as well as what can be had at the best advantage, both in price and in service.

The local markets in sand and gravel and cement are particularly strong at this time and a steady advance of demand in other lines is looked forward to. The trend of the times is favorable to dealers, and consequently encouragement bordering on enthusiasm prevails.

Building operations have been moving slowly for several weeks but change in weather conditions served to strengthen the optimistic feeling which is now apparent. A leading dealer expressed the opinion that improvement thus far is largely a matter of sentiment, for the reason that there is little in actual trade conditions to warrant excessive optimism. "In two or three weeks we have reason to expect more than fair trade with a gradual upturn in business that will keep us busy and will automatically restore prices to normal."

Interviews with building material dealers in different sections of the city proves that conditions are actually improving, yet most of them base their estimates on sentiment as a precursor of trade. They look on the business sluggishness as about run out, and while not predicting a "boom" they believe that there should be slow, healthy development in the course of a month or two.

New York Dealers Hold Important Meeting

Lively Interest Manifested by Discussion of Papers—Matters Pertinent to Building Material Business in New York State Reviewed for Final Clarification.

The third annual convention of the New York State Builders' Supply Association, held at Hotel Seneca, Rochester, N. Y., Wednesday and Thursday, March 18 and 19, was declared a success by the officers and members, practically all of whom attended.

Early Tuesday evening retailers from various parts of the state put in their appearance. By 8 o'clock that night there were a score or more at convention headquarters, who stated that they had come early in order to get better acquainted with their fellow retailers, as well as to meet some of the manufacturers and their representatives who had been invited to attend the open sessions of the convention.

Promptly at 10 o'clock Wednesday morning Secretary Claud A. Baldwin, of Ithaca, N. Y., together with a few assistants, opened registration headquarters on the parlor floor of the hotel. Badges were supplied to every man who registered. To distinguish between manufacturers and retailers, the latter were given blue badges and the manufacturers were presented with red badges. At the top of each badge there was left a space wherein was written the name and address of the wearer. Because of this arrangement, it was an easy matter to get acquainted.

The board of directors and the executive committee held a meeting during the morning at which topics of vital interest to the retailers of the Empire state were discussed.

First Session, Wednesday Afternoon.

At 2:00 p. m. Wednesday, the doors of the grand ballroom were thrown open to manufacturers and retailers alike. Everyone who had come to Rochester for the convention was present at this session.

It was entirely an informal meeting. President George D. Elwell, of Albany, N. Y., called the convention to order and in eloquent language welcomed the audience to the convention and to all of the open sessions.

Believing that the men present were not sufficiently acquainted with each other, President Elwell used a novel plan of personal introduction. Beginning with the president and secretary, each man was asked to arise and mention his name, the firm he represented and his address. Every man arose in turn and gave his little talk in an interesting manner.

When H. C. Whitmore, of C. B. Whitmore Co., arose, he was afraid some of the men might not be able to locate Lockport, N. Y., so he added to his address, "Twenty-five miles from Buffalo, twenty-one miles from Niagara Falls, and the garden spot of the universe." This statement gave others ideas and they began to elaborate on either the firm name or the address. The president was compelled to humorously remark, "No advertising, gentlemen."

General Discussions Follow Addresses.

Before introducing the first speaker, President Elwell stated that in order to get the most possible good from the various addresses, general discussions would follow the reading of the various papers. Men in the audience were invited to write down questions as they were prompted by the speakers' remarks and to ask them at the close of the addresses.

Mr. Elwell stated that great interest had been taken by all members since the formation of the association, and that in order to continue this interest the plan of discussing papers and asking questions was adopted. To prove that New York retailers and manufacturers are interested in the association, he stated that the active membership had been increased from 30 to 79 members during the past year. On November 1, 1913, it was decided to accept the applications of manufacturers for associate membership. Twenty-nine have been received.

Coal and Ice Department.

"Coal and Ice Departments in Connection with the Builders' Supply Business" was the topic of the first paper to be discussed. George A. Olsen, of ROCK PRODUCTS AND BUILDING MATERIALS, was called upon to open the discussion by reading a paper on the subject. The paper, which is printed elsewhere in this issue, was well received and thoroughly discussed at its close. Among those who took part in the discussion, asking questions as well as stating their own and others' experiences were: John Davies, of Utica, N. Y.; J. W. Ballard,

GEO. D. ELWELL, PRESIDENT, NEW YORK STATE BUILDERS' SUPPLY ASSOCIATION, ALBANY, N. Y.

of Binghamton, N. Y.; S. M. Hamilton, of Buffalo, N. Y.; W. T. Duggan, of Cleveland, Ohio; Bert L. Swett, of Allentown, Pa.; Edgar T. Belden, New York, N. Y.; Frederick W. Ives, of North Tonawanda, N. Y.; Horace T. Oliver, of Rochester, N. Y.; Fred Davey, of Amsterdam, N. Y., and L. G. Powell, of Cleveland, Ohio.

The questions put to Mr. Olsen were answered by him, and the answers elaborated on by retailers who had knowledge on the subjects discussed because of their past or present experiences. Manufacturers and salesmen also took part in the discussion.

A rising vote of thanks was extended to Mr. Olsen for his paper and his presence at the convention.

Employees' Compensation Act.

William E. Fitzsimmons, of the law firm of Coughlin, Fitzsimmons and Archibald, of Albany, N. Y., talked very ably and interestingly on "The Employees' Compensation Act." A workmen's compensation law has recently been passed by the New York legislature and will become effective on July 1, of this year. Similar laws are now in effect in 22 states and on July 1 will be enforced in two more. The subject is of the utmost interest to employers of labor, including building material dealers. The provisions of the law make every New Yorker subject to its terms. In this manner it differs somewhat from similar laws in Michigan and a few other states. In Michigan employers have the privilege of choosing to come under the jurisdiction of the law, but it is not so with the terms of the New York measure. Unusual interest was taken in Mr. Fitzsimmons' address, which was as follows:

Mr. Fitzsimmons' Address.

The Workmen's Compensation Law of the state of New York is legislation intended to eliminate one of the few remaining, and most important, sources of dissatisfaction now existing between employer and employee, injury or death resulting from accident while in the performance of duty, without adequate compensation therefor. It is a law conforming to changed industrial conditions and modern humanitarian principles. In the future the workman will be far more contented and happy in a realization of the fact that if misfortune overcomes him and he meets with an accident, his loss will be compensated for; or, in the event of his death resulting from the injury, his wife and children will be properly taken care of. Such a man will give far better results to his employer.

The Workmen's Compensation Law, while new in the state of New York, is neither new nor untried. For several years past it has been in force in one form or another in every European country, first becoming operative in Germany in 1884, and during the past two or three years in twenty-two states of the Union, and on July 1st will become effective in this state and Iowa.

This legislation will result in mutual advantage and benefits to both employer and employee. For this great progressive and beneficial legislation we are indebted to the energetic efforts of Governor Glynn. In his candidacy for the office of lieutenant-governor he preached the doctrine of workman's compensation and at the first opportunity, after being elevated to the office of governor, displayed in respect to this legislation those same qualities—a man of his word, a man who regards pre-election promises as obligations to be kept. Despite all objections raised to the act itself and disregarding all appeals for delay, he brought his great influence to bear to place the act upon our statute books.

Brief Review of the Servant Question.

That we may the better understand the needs which called into being the "Compensation Act" and the benefits to be derived from it, let us briefly look backward. In ancient times, the servant or bondman was regarded as property. Over his life and destiny the master had supreme control. He passed with the title to the land. The law of Moses and the institutes of Justinian in no way granted him any rights or privileges. By the provisions of the Magna Charta, granted by King John at the demand of his barons on the banks of the Runnymede in 1215, the workman or servant for the first time in history was recognized. The conclusion had then been reached that the life of the bondman was as valuable to his family and society as was that of the master, and from the seed sown by that great "Charter of Rights" has sprung up all of the law of today which guarantees rights in respect to life, liberty and property.

As England is the fountainhead of all modern justice, we in America are indebted to her for the principles of our law. The common law, that is to say the customary law, declared and expounded by the judges as cases of dispute arose, as contrasted with statutory or legislative enactments, laid down doctrines respecting injuries sustained by workmen, which, with modifications, were in force in the state of New York up to 1902. Briefly, the doctrines of common law in respect to liability can be set forth in five groups:

First: The employer was bound to furnish to his employee a safe place to work, safe machinery, together with adequate and suitable tools and equipment for the work in hand.

Second: To employ skilful and competent fel-

low servants and a sufficient number of them to perform the work and to exercise oversight and supervision, to the end that incompetent servants should be discharged and see to it that his employees did not intentionally and habitually disregard his instructions.

Third: The employer was bound when engaged in a complex business that required definite regulation for the safety and protection of his employees to adopt and promulgate proper rules for carrying on the business and to see that such rules were enforced.

Fourth: To instruct youthful or inexperienced servants or employees as to the danger which existed from causes not apparent to them, but known to him.

Fifth: The employer owed to his employee the duty of reasonable care, having regard to the parties engaged, the business in which they were engaged, and the exigencies which required vigilance and attention. He was not, however, the guarantor of the safety of the servant or employee.

The employer had open to him the defenses of contributory negligence, the assumption of risk by the employee, and the fellow servant doctrine. Briefly, notwithstanding that there was negligence on the part of the employer, any negligence on the part of the employee contributing to the accident, freed the employer from responsibility. Such was the doctrine of contributory negligence.

The employee assumed the inherent risks of his occupation. This is the "Assumption of Risk" doctrine. If the negligence through which an employee was injured was that of a fellow workman, the employer was likewise freed from responsibility. That was the fellow servant doctrine.

In the days when industry was conducted on a small scale and the master worked with his men, or was himself the manager, the hardships of the doctrines of common law were little felt. The personal negligence of the employer could in many cases be established. As the factory system developed and the scale upon which all industries were conducted was ever expanding, it became increasingly difficult to hold the employer responsible. Much dissatisfaction resulted and in consequence there was enacted by Parliament in 1880 the "Employers' Liability Act." This act grafted upon the "Common Law" many exceptions. For several years thereafter that act gave mutual satisfaction alike to the employer and employee of England.

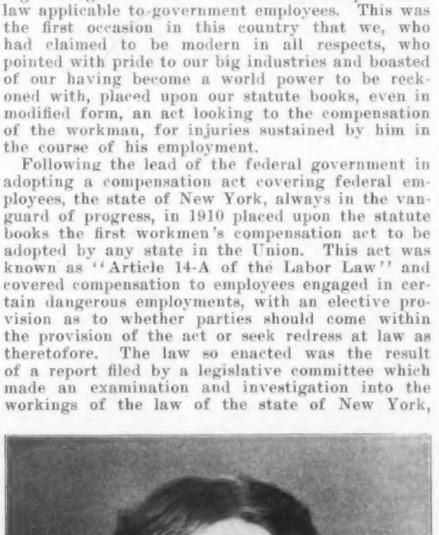
New York Adopts Labor Law in 1902.

In 1902 the state of New York using the "Employers' Liability Act" in England as a model, by Chapter 600 of the Laws of 1902, enacted the "Employers' Liability Act," which is now a part of our labor law. Briefly, that act waived the fellow servant doctrine, where the injury resulted by reason of the negligence of any person in the service of the employer entrusted with and exercising superintendence over the work, where the sole or principal duty was that of superintendence; however, if the superintendent was engaged in a detail of the work, under the interpretion of the law by the courts, he was not engaged in the duty of superintendence. Under the provisions of this act, the service of a notice by the employee upon the employer was made necessary.

With minor changes, this act continued in effect until 1910. At that time it was further amended in favor of the employee by practically abolishing the assumption of risk doctrine on the part of the employee; and, secondly, by abolishing the fellow servant rule in that it made the master responsible for the negligence of any person entrusted with authority to direct and control an employee, even though that person be engaged at the time in a detail of the work; and, thirdly, contributory negligence was made a defense to be pleaded and proved by the defendant; and, lastly, the provisions as to the drawing and serving of a notice by the employee were made more lenient.

In the days of the stage coach, the lumbering wagon train—the days when the highways were little more than broken trails through the wilderness and the journey to New York was accomplished in record time in the space of three days—the doctrines of the common law were well enough, but as steam and electricity relegated those relics to the rear and distance was no longer reckoned by miles, but by time, through a slow process of education and enlightenment, we have had the conclusion forced upon us that the workman—he who produces and gives capital its power—was entitled to more consideration than he had been receiving. By statute, we have limited his hours of labor on certain work. We have thrown several safeguards around his work and women and minor children have received special and worthy consideration. Industry, keeping pace with enlightenment, shortened the hours of labor and increased wages. He had now come to feel that in respect to injuries sustained by workmen, the law should reach out a helping hand. As a result of this modern thought, President Roosevelt in 1908 by special message, urged Congress to enact a workmen's compensation law applicable to government employees. This was the first occasion in this country that we, who had claimed to be modern in all respects, who pointed with pride to our big industries and boasted of our having become a world power to be reckoned with, placed upon our statute books, even in modified form, an act looking to the compensation of the workman, for injuries sustained by him in the course of his employment.

Following the lead of the federal government in adopting a compensation act covering federal employees, the state of New York, always in the vanguard of progress, in 1910 placed upon the statute books the first workmen's compensation act to be adopted by any state in the Union. This act was known as "Article 14-A of the Labor Law" and covered compensation to employees engaged in certain dangerous employments, with an elective provision as to whether parties should come within the provision of the act or seek redress at law as theretofore. The law so enacted was the result of a report filed by a legislative committee which made an examination and investigation into the workings of the law of the state of New York,



C. A. BALDWIN, SECRETARY, NEW YORK STATE BUILDERS' SUPPLY ASSOCIATION, ITHACA, N. Y.

relative to the liability of employers for industrial accidents, and the comparative efficiency, costs, merits and defects of the laws of other industrial states and countries bearing upon the same subject, and further, as to the causes of accidents sustained by employees. This commission was headed by former Senator Wainwright, from whom it has taken the popular title of the "Wainwright Commission."

Governor Glynn in his apparent effort to appoint men well qualified for the position to which they are appointed has very wisely appointed Senator Wainwright as one of the compensation commissioners.

Antagonism May Be Eliminated.

The commission in its report recommending legislation of this character, said: "Not the least of the motives moving us is the hope that by these means a source of antagonism between employer and employee pregnant with danger to the state may be eliminated."

You are all aware of the result of that legislation; that it was attacked in the now famous Ives case on the ground that it was unconstitutional in that it violated the provisions of the fourteenth amendment of the federal constitution, which guarantees to all citizens the equal protection of the law, and to that further provision which guaranteed all persons against deprivations of life, liberty and property without due process of law.

You will recall that following the decision in the Ives case, the constitution of the state of New York was amended so as to permit the enactment and enforcement of the "Compensation Act." As the amendment to our constitution became operative only on the first of January last, it must be admitted that no time was lost in availing ourselves of the opportunity to place upon the statute books a law looking to carry out the humanitarian principles sought. The workman's compensation law of the state of New York is the result.

The act will become operative July 1, 1914. It contains no elective features as to compensation; all employers, whose employments make them subject to the provisions of the act, are compelled under a heavy penalty to comply with its terms.

Forty-two groups of occupations are included within its provisions and employers engaged in occupations embraced within those designated in the groups are required to provide compensation according to the schedules set forth in the act for the disability or death of the employee in the course of his employment, without regard to fault on the employee's part as a cause of such injury, except where occasioned by his wilful intention or where it results solely from his intoxication. Where the injury is occasioned by the wilful intention of the injured employee, or where it results solely from his intoxication, neither the injured employee nor any dependent of his is entitled to receive compensation. If the employer fails to secure the payment of the compensation as provided, the injured employee may elect to claim the compensation from him as provided under the act, or may institute suit of law, in which case the employer is deprived of the former defenses of negligence of a fellow servant, assumption of risk by the employee, or contributory negligence on the part of the employer.

For the first fourteen days following an injury no compensation except medical attendance is allowed. This is a wise provision, for otherwise much imposition might follow. The employer is obligated to provide medical attendance and proper nursing, hospital treatment, crutches and other essentials for the injured person during the first six months following the injury, and in case he fails to do so the injured person is permitted to furnish them at his employer's expense.

Basis of Compensation.

The basis of compensation under the act is the weekly wage of the employee, based on his annual earnings. In case of total permanent disability, the employee is to be entitled to 66⅔ per cent of the average weekly wages paid, which shall be paid during the term of his disability. Loss of both hands, or both arms or legs or both eyes or any two thereof, shall, in the absence of proof to the contrary, constitute permanent disability. In case of temporary total disability, 66⅔ per cent of the weekly wages shall be paid during the continuance of the injury, the same, however, not to exceed $3,500.

In case of disability, partial in character, but permanent in quality, the compensation shall be 66⅔ per cent of the average weekly wages and shall be paid for the period named in the schedule. For instance, for the loss of a thumb, 60 weeks' compensation shall be paid; the first finger (commonly called the index finger), 46 weeks; second finger, 30 weeks; and third finger, 25 weeks; fourth, or little finger, 15 weeks. The loss of the first phalanges of the thumb or finger shall be considered equal to the loss of one-half the thumb or finger and compensation shall be half of the amount for the whole. The loss of more than one phalange is considered the loss of the whole. For the loss of the great toe, 38 weeks, and other toes, 16 weeks; for a hand, 244 weeks; an arm, 312 weeks; foot, 205 weeks; leg, 288 weeks, and eye, 128 weeks. Permanent loss of the use of the hand or arm or leg shall be considered equivalent to the loss of such member. Where the loss is but temporary, the injured employee shall receive 66⅔ per cent of the difference between what his average weekly wages were and what his earning capacity is, subsequent to the accident. Such compensation shall not, however, exceed $20 per week, nor be less than $5, provided that if the wages are less than $5 he shall receive that amount.

In case of death, the reasonable funeral expenses, not exceeding $100, shall be paid; and if there be a surviving wife or a dependent husband and no child under the age of eighteen years, the wife or dependent husband shall receive 30 per cent of the average wages of the deceased during widowhood or dependent widowhood; with two years' compensation in a gross sum upon remarriage, and in lieu of further compensation; and if there be a surviving child or children under the age of eighteen years, an additional sum of 10 per cent of such wages until the child arrives at the age of 18 years, provided that the total amount thereof shall not exceed 66⅔ per cent of the wages that would have been earned during that period. If there be no wife or dependent husband the children under eighteen years of age, shall receive 15 per

cent of the wages each, provided that the aggregate shall not exceed 66⅔ per cent for the same period of time.

Provision is also made for dependent grandchildren or brothers and sisters under the age of 18 years, dependent upon the deceased, and also for grandparents, if dependent upon him at the time of the accident, but any excess of wages over $100 per month shall not be taken into account in computing the compensation.

The act provides for notice of the injury to be given to the commission, which is charged with the working out of the provisions of the law and also to the employer, within 10 days after the disability, or, in case of death, within 30 days. The notice must be in writing. The amounts to be paid are to be determined by a commission of five members appointed by the governor. The commission is allowed to modify, upon its own motion, or upon application of any party in interest, the awards made.

If a party is aggrieved at the amount, an appeal is allowed to the Appellate division of the Supreme court of the Third Department. If the award made provided for periodical payments and the nature of the injury makes it possible to compute the present value of all future payments, with due regard for life contingencies, the commission may, at any time, compute and permit or require to be paid to the state fund an amount equal to the present value of all unpaid compensation for which liability exists, in trust, and thereupon such employer or insurance corporation shall be discharged from further liability upon such award. Payment thereafter shall be assured by the state fund.

Rights to Compensation Cannot Be Waived

No agreement by an employee to waive his right to compensation shall be valid nor shall any claim for compensation or benefits under the law be assigned, released or commuted, except as provided under the law; and further, the claims shall be exempt of creditors and from levy, execution or attachment, or other remedy for the recovery or collection of a debt and such exemption cannot be waived. The compensation and benefits shall be paid only to the employees or their dependents.

The employer shall secure the compensation of his employees by insuring and keeping insured the payment of such compensation into the state fund or by insuring and keeping insured the payment of such compensation with any stock of mutual company authorized to transact the business of workmen's compensation insurance in this state, or if the employer can satisfy the commission of his financial ability to pay such compensation himself, the commission may, in its discretion, require the deposit with it of the securities of the kind prescribed in the Insurance Law in an amount to be determined by the commission to secure his liability to pay the compensation provided in the act.

Mutual Insurance Organizations May Be Organized.

A further method open to you is that provided by a recent amendment made to the Insurance Law of the state, which adds a new chapter to the law, providing for mutual insurance so that men engaged in one class or line of industries may voluntarily form associations or corporations to which they may mutually contribute for the purpose of complying with the provisions of the compensation law. This amendment is fashioned after one of the provisions of the Compensation Law now in force in Germany.

The employer is required to post notice in the place of business of the fact that he has complied with all the rules of the commission.

The working out of the act is placed under a commission, which has ample jurisdiction over all matters that may arise and has all the powers and duties of a court in the premises. The administrative features of the act are of little importance to you as employers, so I will not comment upon them.

The law provides for the formation and creation of a fund to be known as the "State Insurance Fund," for the purpose of insuring employers against liability and of assuring to the persons entitled thereto all the compensation provided for by the act. While the commission is obliged by law to divide the fund into groups set forth in the second section of the chapter and separate accounts are to be kept of the amounts collected and expended in reports to each said group, for convenience, in determining equitable rates, the state fund, for the purpose of paying compensation, is one and indivisible.

The fund is to be made up of all premiums received and paid into the fund and of property acquired by and through the use of moneys belonging to the fund and of interest earned thereon.

The state treasurer is the custodian of the fund. The entire expense of administering the fund shall be paid in the first instance by the state, but after the first of January, 1918, the expenses of the commission are to be paid out of the fund thus created.

The act provides for a refund of the excess of premiums paid to those contributing in the form of a dividend, and, while the law does not so state, but by the same economic principle you may be called upon to pay an extra assessment.

While compensation acts have been in force in all of the European countries for several years past, and in several of the states of this union for a period of two or three years past, there is no doubt but that this act, for some time to come, will be subject to judicial interpretation as to its various provisions. As to some of the provisions, we will be aided by the interpretations of the courts of foreign countries, but as the conditions existing there are quite dissimilar to those existing here, we cannot look for much assistance from that source.

Method of Insuring of Vital Importance.

A question of vital interest to you is that bearing upon the method of insuring to carry out the provisions of compensation open to you under the provisions of the law. The state of New York has not undertaken to engage in the insurance business as a matter of profit, but rather as an incidental means of carrying out the main object sought under the provisions of the act, namely, to give compensation to those injured in the course of their employment, so that it will not be necessary for you, for patriotic or other reasons, to insure in the state fund. As yet we have no means of ascertaining the premiums that will be demanded through this source.

Few business men will care to insure themselves by depositing such securities as are prescribed by the insurance law in an amount to be determined by the commission, nor will you who are engaged in a line foreign to insurance, be attracted by the amendment of the insurance law permitting you to form organizations to carry out the insurance feature. The only other method open to you, other than paying into the state fund, is that under which many of you have operated in respect to accidents, for many years past, namely, the casualty insurance companies. The one attractive feature of casualty insurance is the known fixed value for the insurance, which you will be compelled to carry. As these companies have made a business of casualty insurance for many years past, and have in the course of their work prepared statistics bearing upon the subject, it can safely be assumed that, in their effort to continue in existence, they will make rates not in excess of those known to be commensurate with the risks to be assumed.

I have examined the report issued by the Michigan Industry Accident Board bearing upon this subject. The figures set forth may be of interest to you in connection with the method under which you will insure. Eighty-eight per cent of the total number insured carry their insurance with casualty companies; .0605 per cent insure themselves; .0197 organized mutual companies, while .032 per cent insure in the state fund. From the reports available at this time, it would appear that the act has given great satisfaction, both to employers and employees in the state of Michigan. It has resulted in reducing accidents 25 per cent since the law became operative in September, 1912, and has brought about much improved and safer methods of work.

These views as to the method of your insuring are, at the best, my personal views. You must determine for yourselves under all conditions, which method is most advantageous and economic for your business.

As our personal Employers' Liability Act has done much to safeguard those engaged in hazardous employments and brought to the forefront recognition of the principle of compensation, so the Compensation Law will gradually develop into a great machinery for the saving of human lives. It will minimize wilful neglect and intoxication on the part of employees. It will do much towards keeping fatherless children out of factories and mills, because of the necessity to work to gain the bare means of existence, and will open to them the opportunities of education and advancement afforded their more fortunate brothers and sisters. It will be the means of forcing those having the lives of their fellowmen under their control to spare neither labor, ingenuity nor money in making our industrial conditions as safe as it is possible to make them. This legislation will go down the years as one of the most progressive and humanitarian movements beneficial alike to employer and employee. Realizing the great principle upon which the law is based, we should be patient and aid all those charged with the duty of its enforcement to the fullest extent of our ability to the end that the law will be in practice, that which it now is in theory—an instrument of great and lasting good.

One of the first questions asked of Mr. Fitzsimmons was put by C. M. Hamilton, of Buffalo, who wanted to know what would become of the present profits of the building material dealer. The reply was that, as the ultimate consumer pays for everything, the expense of this insurance will be charged to "Maintenance of Business," and prices of materials will be raised accordingly.

For a period of one hour and thirty minutes questions were put to Mr. Fitzsimmons, who very cleverly answered them all, sometimes humorously in the terms of a baseball fan. Among those taking part in the discussion on "The Employees' Compensation Act" were Horace Oliver, of Rochester, N. Y.; John Davies, Utica, N. Y.; Edgar T. Belden, of New York, N. Y.; L. G. Powell, of Cleveland, Ohio; Frederick W. Ives, of North Tonawanda, N. Y.; J. L. Hughes, of Utica, N. Y.; M. K. Squier, of Syracuse, N. Y.; H. L. Hutson, Grand Rapids, Mich.; Frank B. Farrell, of Oswego, N. Y. A rising vote of thanks was given Mr. Fitzsimmons.

Following this discussion, President Elwell announced that the session had drawn to a close, but urged everyone to be in the ballroom at 8:15 p. m. for the "Smoker and Cabaret."

Motion Pictures Feature of Smoker.

At the appointed time, the ballroom was filled with men—and with smoke.

The first feature of the evening was a moving picture exhibition of the manufacture, packing and shipping of Portland cement. The pictures were perfect. They showed the location and mining of the natural rock, the crushing and grinding of the broken stone, the calcining process, and, in fact, every detail connected with the making of Portland cement.

The modern method of packing cement bags was closely and carefully watched. The making, testing and packing of barrels for foreign shipment was presented so completed that no doubt remained as to the manner in which this work was done. The loading of large ocean-going vessels with barreled cement concluded this film.

When the lights were turned on, cigars were passed and an excellent cabaret show followed.

Manufacture of Plaster Shown in Picture.

The manufacture of gypsum plaster was likewise explained by the motion picture process. Gypsum quarries of Michigan and Iowa were shown. Methods of quarrying, crushing and calcining were depicted with the minutest care.

The exhibition of plaster making was followed by a display of the manufacturing and proper usage for construction purposes of gypsum partition tile and plaster board.

A recent fire test given plaster board in the city of Chicago was portrayed upon the screen and showed conclusively the efficiency of plaster board.

The evening's entertainment lasted until 10:30, at which hour the men adjourned to the lobby and continued their conversations in small groups.

Thursday Morning's Session.

Five bills are pending before the state Legislature amending the mechanics' lien law of the state. The members of the association spent the major portion of their morning session listening to an explanation by Henry W. Eaton, a New York attorney, who drafted the special measure in which they were interested. The form of the bill, as outlined, was heartily approved by the association, which already had sent a committee to Albany to register the approval of the supply men. In the closing days of the legislature the prospects of the passage of the bill were not thought to be bright, inasmuch as the measure has not been reported, either in the senate or the assembly.

According to Attorney Eaton, the weakness of the existing law is that priority is given to the first lien that is filed. Therefore a strong incentive is given to the dealers who furnish building materials to file the first lien, and the filing of a lien, which is

inevitably followed by other liens, tends naturally to tie up all operations on the job.

Proposed Changes in Lien Law.

The proposed bill wipes out the priority of one lien over another. It provides a mortgage may be given to a trustee to satisfy liens. On the consent of claimants having 75 per cent of liens on the property, all subsequent liens, judgments and attachments become subordinate. Claimants holding 75 per cent of the liens may agree to the sale of the property and the discharge of the liens, the proceeds of the sale to be distributed pro rata.

The entire tendency of the bill is to prevent the filing of liens, excepting as a last resort, and in cases of absolute necessity, for protection of claims. Last year an amendment to the lien law was offered in the interest of the speculative building men of New York City, which the supply men felt was unfair to their interests. This year the supply men introduced their own bill which has received general support from lumber dealers, hardware men and others who furnish materials.

Election of Officers.

The following officers were elected for the coming year: President, Geo. D. Elwell, Albany; Treasurer, S. M. Hamilton, Buffalo; secretary, C. A. Baldwin, Ithaca.

Vice Presidents:

M. T. Bannigan, Utica; B. J. Mitchell, Niagara Falls; J. W. Ballard, Binghamton; W. P. Boright, Chatham.

Directors for 3 Years:

E. W. Ladd, Albany; W. L. Pratt, Massena; Fred Salisbury, Syracuse; James Hamilton, Rochester.

Mayor Hiram H. Edgerton, who is known throughout the state as a builder, was the guest of honor at the noon luncheon. He received an enthusiastic welcome. He told the visitors how glad he was to welcome them to Rochester, and although the welcome was a day late, it was none the less sincere.

The convention then came to a close.

Attendance.

Fred Davey, Fred Davey, Amsterdam, N. Y.
H. C. Whitmore, C. B. Whitmore Co., Lockport, N. Y.
J. W. Ballard, J. W. Ballard Co., Binghamton, N. Y.
C. A. Baldwin, Driscoll Bros. & Co., Ithaca, N. Y.
Geo. D. Elwell, Newton Brick & Supply Co., Albany, N. Y.
James P. Drake, Elmira Builders' Supply Co., Elmira, N. Y.
Edw. W. Ladd, Albany Builders' Supply Co., Albany, N. Y.
M. T. Bannigan, McQuade & Bannigan, Utica, N. Y.
C. A. Sweet, Diamond Wall Cement Co., Rochester, N. Y.
John H. Tweedie, John H. Tweedie, Walton, N. Y.
E. H. Belcher, Newton Brick & Supply Co., Albany, N. Y.
Frank B. Farrell, J. B. Farrell & Co., Oswego, N. Y.
S. H. Skinner, S. H. Skinner, Sherman, N. Y.
W. L. Pratt, Massena, N. Y.
E. W. Miller, American Clay & Cement Corp., Rochester, N. Y.
Geo. W. Lauer, Rochester Lime Co., Rochester, N. Y.
John McCarthy, McCarthy Bros., Auburn, N. Y.
John Davies, Empire Wall Plaster Co., Utica, N. Y.
Horace T. Oliver, Rochester, N. Y.
S. B. Van Duvoort, Jamestown, N. Y.
Frederick W. Ives, Ives Ice & Coal Co., North Tonawanda, N. Y.
LeRoy M. Slocum, Scottsville, N. Y.
W. K. Squier, Syracuse, N. Y.
W. F. O'Connor, Syracuse, N. Y.
Fred J. Salesbury, Syracuse, N. Y.
J. L. Hughes, Utica, N. Y.
C. W. Pack, C. W. Pack & Son, Syracuse, N. Y.
James C. Nellis, Syracuse, N. Y.
J. H. Bearst, Geneva, N. Y.
S. M. Hamilton, Buffalo Builders' Supply Co., Buffalo, N. Y.
C. L. Hayes, Buffalo Builders' Supply Co., Buffalo, N. Y.
H. G. Carpenter, Robinson & Carpenter, Ithaca, N. Y.
J. H. Ross, Buffalo, N. Y.
F. L. Lane, Buffalo, N. Y.
Henry Schaefer, Jr., Buffalo, N. Y.
F. F. Dutton, Utica, N. Y.
H. B. Long, People's Coal Co., Williamsonville, N. Y.
E. J. Hutchinson, American Clay & Cement Corp., Rochester, N. Y.

Manufacturers.

E. B. Lawson, Sykes Metal Lath & Roofing Co., Niles, O.
W. A. Fuchs, Lehigh Portland Cement Co., Allentown, Pa.
G. L. Furbush, Edison Portland Cement Co., Warners, N. Y.
C. M. Edwards, Edison Portland Cement Co., Binghamton, N. Y.
M. H. Burk, Majestic Foundry & Furnace Co., Huntington, Ind.
P. D. Edridge, Jas. B. MacNeal Co., Baltimore, Md.
Edgar T. Belden, Palmer Lime & Cement Co., New York, N. Y.
Frank G. Conkling, Atlas Portland Cement Co., New York, N. Y.
C. H. Brigham, Atlas Portland Cement Co., New York, N. Y.
H. S. Dudley, Atlas Portland Cement Co., New York, N. Y.
S. A. Putnam, Atlas Portland Cement Co., New York, N. Y.
H. H. Hickman, Corrugated Bar Co., Buffalo, N. Y.
R. B. Holcomb, U. S. Gypsum Co., Rochester, N. Y.
H. L. Purdy, Hayes Run Fire Brick Co., Utica, N. Y.
W. R. Macatee, Edison Portland Cement Co., New York, N. Y.
A. T. Reynolds, Kosmos Portland Cement Co., New York, N. Y.
B. L. Swett, Lehigh Portland Cement Co., Allentown, Pa.
Walter J. Bennett, Whitehall Cement Mfg. Co., New York, N. Y.
O. G. Johnson, Lawrence Portland Cement Co., Philadelphia, Pa.
Chas. Schmutz, Crescent Portland Cement Co., Wampum, Pa.
C. C. Beebe, Crescent Portland Cement Co., Wampum, Pa.
L. G. Powell, Bostwick Steel Lath Co., Cleveland, Ohio.
R. J. Keyle, Universal Portland Cement Co., Pittsburgh, Pa.
L. C. Letzkus, Universal Portland Cement Co., Pittsburgh, Pa.
M. F. Byrne, Atlas Portland Cement Co., New York City.
Wm. T. Duggan, Sandusky Portland Cement Co., Cleveland, O.
H. L. Hutson, Reynolds Asphalt Shingle Co., Grand Rapids, Mich.
Jos. C. Seguine, J. B. King & Co., New York, N. Y.
J. B. Vandever, Nazareth Portland Cement Co., New York City.
L. F. Jackson, Northwestern Expanded Metal Co., Boston, Mass.
R. A. Truax, Robinson Clay Products Co., New York City.
C. S. King, Lehigh Portland Cement Co., New York City.
T. W. Curtis, Jr., Empire Gypsum Co.
August A. Wolf, Empire Gypsum Co.
A. P. Lockwood, The Kelley Island Lime & Transport Co., Cleveland, O.
H. Jason Knapp, Central Clay Products Co., North Tonawanda, N. Y.
H. H. Frey, General Fireproofing Co., Youngstown, O.
J. H. Barkly, Elk Fire Brick Co., St. Marys, Pa.
W. H. Wiltse, Thomas Miller Co.
S. F. Bartlett, U. S. Gypsum Co., Chicago, Ill.
W. A. Hoffman, Reynolds Asphalt Shingle Co., Grand Rapids, Mich.
W. W. Bailey, Atlas Portland Cement Co., New York City.
C. A. Nellis, Thomas Miller Cement Co.
C. F. Towne, Niagara Gypsum Co., Buffalo, N. Y.
B. O. Payne, Vulcanite Portland Cement Co., New York City.
Frederick Stanger, Vulcanite Portland Cement Co., New York City.
Geo. A. Olsen, ROCK PRODUCTS AND BUILDING MATERIALS, Chicago, Ill.
Thomas M. Dyer, Alpha Portland Cement Co.
A. P. Clark, Corrugated Bar Co., Buffalo, N. Y.
M. Cay, J. B. King & Co., New York City.
E. B. Entwisle, Entwisle Co., Inc., New York City.
R. L. Cope, Allentown Portland Cement Co., Allentown, Pa.
William G. Zipp, Coplay Cement Mfg. Co.
Frank A. Keith, Sampson Plaster Board.
W. E. Gardiner, Sampson Plaster Board.
S. G. Taylor, Lehigh Portland Cement Co., Rochester, N. Y.

Decrease in Building in February.

Building was not so active in February just closed, as it was in the corresponding month a year ago. Permits were taken out in eighty-nine cities in February, according to official reports to Construction News for the erection of 11,668 buildings, involving a total expenditure of $43,316,809, against 13,376 buildings, involving $50,587,103, for the same month a year ago, a decrease of 1,708 buildings and $7,270,294 or 14 per cent. There were increases in 47 and decreases in 42 cities. There were some marvelous gains in some of the smaller places which is accounted for by the fact that one or two important buildings will show a remarkable percentage of increase or decrease in a small city over the preceding record. The figures in detail are as follows:

Cities.	1914 No. of Bldgs.	1914 Estimated Cost.	1913 No. of Bldgs.	1913 Estimated Cost.	% Gain.	% Loss.
Chicago	376	$ 5,070,600	486	$ 4,684,450	8	..
San Francisco	449	4,574,282	454	1,398,450	252	..
Boston and vicinity	163	3,333,000	214	5,586,000	..	7
New York (Boros. Man. and Bronx)	288	2,053,126	294	10,964,760	..	73
Detroit	253	3,020,350	434	1,967,970	52	..
Pittsburgh	158	2,010,568	195	769,161	161	..
Philadelphia	665	1,794,905	756	1,414,645	26	..
Los Angeles	829	1,455,730	1,210	1,693,582	..	13
Cleveland	581	1,398,010	490	1,167,725	19	..
Newark, N. J.	151	1,247,933	158	1,094,009	14	..
Kansas City, Mo.	308	1,053,950	249	488,000	116	..
St. Louis	415	906,083	451	2,121,693	..	57
Washington, D. C.	235	884,036	289	631,983	39	..
Toledo	108	606,400	101	406,280	49	..
Portland, Ore.	573	605,530	536	690,240	..	13
Milwaukee	127	578,382	119	518,536	11	..
San Antonio	219	577,950	219	137,390	323	..
Dallas	211	564,320	184	434,460	29	..
Seattle	789	563,295	777	1,468,560	..	62
Minneapolis	178	498,005	295	361,590	38	..
Oakland	279	429,192	395	596,264	..	28
Baltimore	244	417,743	297	723,135	..	42
Buffalo	172	395,000	173	347,000	14	..
Rochester	139	373,957	153	463,024	..	19
St. Paul	151	371,444	131	218,686	69	..
Davenport	16	352,950	8	14,325	2,363	..
Atlanta	215	335,391	290	423,581	..	20
Indianapolis	153	292,938	311	479,653	..	39
Springfield, Mass.	47	292,765	82	264,400	10	..
New Haven	33	291,754	50	98,065	190	..
Memphis	232	275,455	358	248,475	11	..
Richmond	81	270,567	84	391,819	..	30
Fort Worth	59	243,063	57	128,865	98	..
Columbus	108	225,915	130	235,890	5	..
Omaha	65	221,175	80	236,988	..	6
Birmingham	257	216,455	250	1,367,333	..	84
New Orleans	....	204,794	....	387,908	..	47
Albany	118	200,650	114	333,100	..	39
Akron	71	198,530	76	188,650	5	..
Hoboken	19	178,084	10	49,885	257	..
Tacoma	128	167,722	145	139,294	20	..
Louisville	93	163,800	178	553,320	..	70
San Diego	230	163,098	313	575,840	..	72
Evansville	59	159,256	84	58,865	170	..
Duluth	56	147,370	52	83,500	76	..
Cedar Rapids	70	145,900	23	106,000	37	..
Trenton	39	145,734	44	77,064	87	..
Chattanooga	173	108,925	148	134,855	..	19
Norfolk	45	199,612	79	317,359	..	59
Salt Lake City	53	113,600	43	101,950	10	..
New Bedford	41	111,825	82	121,850	..	7
Savannah	43	110,950	71	160,195	..	30
Colorado Springs	25	110,530	14	25,140	339	..
Tampa, Fla.	129	109,880	105	176,840	..	37
Worcester	38	104,820	67	181,502	..	42
Syracuse	63	104,618	92	444,200	..	54
Fort Wayne	8	101,100	26	72,000	44	..
Berkeley, Cal.	31	100,300	95	163,000	..	38
Hartford	50	99,165	56	114,560	..	13
Reading, Pa.	36	95,750	44	81,475	17	..
Altoona	31	93,905	18	15,313	545	..
East St. Louis	26	95,370	25	27,025	253	..
Youngstown	36	84,740	30	47,300	15	..
Pasadena	113	83,085	93	664,534	..	87
Grand Rapids, Mich.	47	83,095	56	143,500	..	42
Nashville	42	79,885	29	155,760	..	48
Peoria	21	66,350	15	15,764	321	..
Charlotte	18	65,041	28	37,576	73	..
Scranton	25	64,729	41	69,730	..	7
Allentown	23	60,300	37	105,100	..	42
Erie	63	58,150	42	48,661	19	..
San Jose	44	50,353	45	42,876	19	..
Dayton	30	49,970	450	2,012,250	..	97
Portland, Me.	9	47,000	13	32,930	42	..
South Bend	11	42,950	8	8,600	411	..
Kansas City, Kans.	41	43,178	25	27,850	54	..
Wilkes-Barre	31	36,973	25	22,520	64	..
Lincoln	25	35,675	23	49,300	..	27
Pueblo, Colo.	23	35,200	13	17,420	102	..
St. Joseph, Mo.	27	29,715	44	40,115	..	25
Sioux City	26	28,875	30	93,650	..	69
Springfield, Ill.	15	28,050	77	44,730	..	37
Elizabeth, N. J.	13	23,210	28	139,600	..	84
Stockton	36	22,426	41	113,671	..	80
Lawrence	5	14,900	12	42,560	..	65
Saginaw	....	13,465	..	10,925	23	..
Bayonne	7	11,075	95	104,001	..	89
Schenectady	10	9,680	20	64,675	..	85
Passaic	10	9,410	34	34,553	..	73
Totals	11,668	$43,316,809	13,376	$50,587,103	....	14

Indiana Dealers in Campaign.

Members of the Indiana Building Material Dealers Association, which was recently organized at Indianapolis, are now engaged in a campaign to secure members.

Application blanks have been prepared and Secretary Rogers is sending them with invitations to join to every building material dealer in the state. The association is progressing very nicely, according to Mr. Rogers, who expects that by the end of the first year they will have one of the most active organizations of the kind in the country.

The Koch Building and Supply Co. has been incorporated at Ann Arbor, Mich., capital stock, $12,000.

New Jersey Dealers In Annual Meeting

Sessions Provided Discussions of Many Topics of Interest to the Association—Organization Is Progressive and Its Work Effective—Banquet Was Social Feature of the Convention.

One of the most interesting conventions ever held by the Mason Material Dealers' Association of New Jersey was their tenth annual meeting held at Hotel Manhatten, New York City, Thursday, March 19. Notices sent to members of the association foretold that live subjects such as "The Bag Question," "The Handling and Sale of Cement," "Credits" and "Report of Lien Law Committee" would be discussed. The program proved to be an inducement to attend the meeting, as retailers from every part of the state were on hand when the executive session was called to order by President Frank H. Genung shortly after 2 p. m.

Expression of personal opinion was the order of the day. Accordingly the welfare of the association as well as the industry was freely discussed, every subject bringing out opinions of those present.

After the formalities of reading the minutes and correspondence, the treasurer's report was submitted. This showed the association to be in a good financial condition and that it had a membership of 157 active and 65 associate members.

Election of Officers.

The nomination committee submitted as its report the following list of candidates for the various offices to be filled:

President: Frank H. Genung, Newark.

Vice-presidents: Priah F. Washburn, Jersey City; F. W. Veghte, Roselle.

Treasurer: Charles Agnew, Paterson.

Board of trustees (for a period of three years): George A. Smock, Asbury Park; Edwin Demarest, Tenafly; I. R. Rolfe, New Brunswick; J. W. Clinton, Passaic; Charles J. Smith, Somerville; L. V. Ludlow, Far Hills.

The report was duly received, whereupon the secretary was instructed to cast a vote for the association in favor of the candidates whose names had been submitted. Secretary Reilly responded that it was a pleasure for him to do so, and accordingly the candidates were elected.

In addition to the officers elected, there are 12 trustees, whose terms did not expire. They are: Morton T. Brewster, Ridgefield Park; M. P. Stevens, Bayonne; H. A. Todd, Plainfield; J. C. Tattersall, Trenton; M. F. Ellis, Bernardsville; W. C. Salmon, Boonton; J. D. Loizeaux, Plainfield; Horace S. Osborne, Upper Montclair; G. Frederick Richters, Perth Amboy; Elmer Blauvelt, Hackensack.

James M. Reilly, of Newark, remains secretary.

In thanking the members for the confidence placed in him and the honor once more bestowed on him, President Genung congratulated the association on what it had been able to do for its members and expressed the hope that he would be able to accomplished something of benefit to the individual members through the instrumentality of his office and in conjunction with the other officers.

President Genung, having been appointed by ex-Governor Wilson a member of the Commission to revise and codify the Mechanic's Lien Law of the state, submitted a verbal report of what the commission had done and wherein its accomplishments will benefit the building material dealers of the state if the commissioners' draft of a bill to revise, codify and perfect the mechanics' lien law passes the New Jersey legislature. A law, which is said to be ideal from the standpoint of the mason material and lumber dealers and which has met with the approval of the labor element, has been drafted. It is believed that this proposed bill meets the demands of the building material dealers as well as the members of the various building trades unions.

Because of its length, it is impossible for us to print the proposed law in this issue of ROCK PRODUCTS AND BUILDING MATERIALS. Its excellent provisions should be read by every dealer in the country as a model for their individual state lien laws. For this purpose it will be printed in a subsequent issue of this publication.

A review of the past year's activities constituted the president's address.

The Bag Question.

The first topic of the day to receive active discussion was "The Bag Question." A number of questions had been prepared, among them the following:

"What does it cost to handle empty bags? What is a fair allowance to make? Are we satisfied with the charges and allowances made by the manufacturers?"

Statements made by retailers present were interesting. Where statistics had been taken, it developed that it costs the dealer from one to one and nine-tenths cents per bag to care for the empty sacks. Methods whereby this expense should be met were discussed quite freely.

Handling and Sale of Cement.

The present terms of the sale of cement to the retailer were taken up under the heading "The Handling and Sale of Cement." It was almost unanimously decided that cement cannot be handled with any degree of satisfaction on a five-cent margin.

Under the heading of "Credits," the present policies of extending long-time credits without interest were condemned. A few of the questions asked were:

"How long a time should a customer have the use of your money without paying interest? Why should interest not be charged on accounts past due? Does your system of discounts encourage prompt payments? What methods do you use to prevent losses? What system of collection do you use?"

A shortage of time prevented this subject from being thoroughly discussed.

Charles M. Kelley, president of the New England Builders' Supply Association, was present at the executive session and was called upon several times to give his experiences relative to the various subjects discussed.

The Open Session.

Immediately following the close of the executive session, manufacturers and wholesalers were invited to meet with the retailers in an open session.

The questions discussed at the earlier meeting were again brought up. The opinions of the retailers were given by the president, who invited the manufacturers to present their views. In the absence of the heads of the various Portland cement manufacturers, cement salesmen gave their views, the idea being conveyed to all present that the manufacturers are anxious to have the retailers succeed and to that extent are willing to co-operate with them in every possible manner.

William C. Norton, of the Consolidated Rosendale Cement Co., read a paper on the advantages of "Rosendale" cement.

The Banquet.

The big affair of the day was the banquet. At 7 o'clock, 190 men entered the banquet room and sat down to a feast that had been carefully arranged and efficiently prepared. The menu was complete and contained all of the various dishes that could be desired. From the "Cream of Spring Vegetables" soup to the "Breast of Chicken Hongroise" and on to the "Assorted Cakes and Coffee," each dish was more enticing than the one that preceded.

After-dinner speeches were as much a part of the program as the menu itself. Everybody remained in their seats to hear the distinguished men who had come to talk.

President Genung extended a most cordial welcome to the assembled throng. Then Hon. Charles E. Sherrill, formerly foreign minister of the United States to Argentine Republic, spoke on "Foreign Trade and Its Facilities."

Mr. Sherrill stated that Americans are taking more interest in foreign trade than ever before. "There are three divisions of foreign trade," said he, "Europe, Far East and South America. The

FRANK H. GENUNG, PRESIDENT, NEW JERSEY ASSOCIATION.

JAMES M. REILLY, SECRETARY, NEW JERSEY ASSOCIATION.

South American trade should appeal to us. They want new things. Our manufacturers have a splendid opportunity of developing a good trade with South American countries.

"Residents of Buenos Aires are able to experiment in all sorts of cement work because of the absence of frost. The thermometer never goes below 40 degrees and seldom above 90."

He pleaded for better marine facilities, stating that if these could be improved more American cement and other materials would be sold.

Other speakers were Hon. Charles O'Connor Hennessy, state senator of Bergen County, N. J., who took as his topic, "The New Freedom That is Possible," and Hon. Weller H. Noyes, president of the New Jersey Interstate Bridge and Tunnel Commission. His topic was "Tieing New Jersey and New York Together."

Just before the last speaker was called upon and while the room was still filled, Secretary Reilly presented a resolution protesting against the imposition of a toll charge on American vessels using the Panama canal. Upon motion, which was duly seconded, the resolution was almost unanimously passed. The resolution reads as follows:

"Resolved, that the Mason Material Dealers' Association of the state of New Jersey, representing 157 dealers who conduct business in the 21 counties of the state, take the occasion at this, their tenth annual convention, to voice an emphatic protest against the imposition of a toll charge upon American vessels owned and operated by Americans and engaged in the carrying trade between any two or more ports in the United States, believing that the imposition of such a toll would be equal to an acknowledgement of the right of Congress under some special plea to restrict and restrain free trade between any two points within these United States, whether such trade is carried in vessels, cars, auto vehicles, or other carriers; further:

"In our judgment the imposition of a toll charge on domestic commerce is un-American and unwarranted and pernicious in its future tendency as well as destructive to the hope of reviving American shipping.

"Resolved, That a certified copy of this resolution be sent to the president of the United States, to the Senators and Representatives in Congress from New Jersey, to the Committee on Foreign Commerce of the Senate and the Commission on Domestic Commerce of the House of Representatives." This resolution was duly recorded.

The Proposed Freight Rate Advance.

A Prominent Building Material Concern Speaks Interestingly on Some Phases of the Situation.

For the third time, the Interstate Commerce Commission has postponed announcing its decision as to allowing the Eastern railroads the 5 per cent increase in freight rates asked for some six months ago. The date now fixed is September 12th, but the commission recently stated that they hoped to render a decision before the summer recess, which usually occurs about July 1st.

The trend of inquiry by the commission is assuming a phase that is of the utmost importance to all dealers of building materials, who have their own private sidings, says the Review of Trade Condition, issued by Tomkins Brothers, Newark, N. J. In a recent circular sent out by the commission, certain questions are propounded which relate to special or extra service, such as spotting, or placing of cars, lighterage, drayage reconsignments, etc. Those that particularly relate to owners of sidings are as follows:

1. Under what circumstances and upon what terms do the carriers construct, maintain and operate industrial spurs?

2. What is the extent of the service they render upon such spurs? Give the number of cars spotted.

3. Such figures as the railroad company has on the cost of that service.

4. Of what benefit to the shipper is the service of spotting cars?

5. What may be said of the propriety of imposing a charge for the service so rendered, in addition to the rate for the road haul?

6. If such a charge may with propriety be imposed, shall it be uniform, or shall the spurs be classified? If so, on what basis?

While the questions propounded might be considered as referring to manufacturers who ship from their own sidings, yet the only inference that can be gathered from the public hearings at Washington, warrants the belief that the subject is being looked upon in a broad manner, and that the advisability of imposing a charge to cover all classes of sidings and business, is being seriously considered.

Traffic authorities who are keeping in close touch with the proposition are predicting that the railroads will ultimately be denied permission by the commission to put into effect the straight 5 per cent rate advance asked for, but would receive an equivalent amount, made up of rate advances and charges for so-called "special privileges." The belief is, that they will be allowed—in fact, directed to charge both small and large shippers and receivers—an additional amount for placing cars on private sidings and industrial spurs.

The suggestions already made to the commission in reference to charges for this particular service, range from 50 cents a car, in cases where the operation is simple, the spur track short, the district not congested to $2.50 per car in cases where congestion exists and the service is complicated.

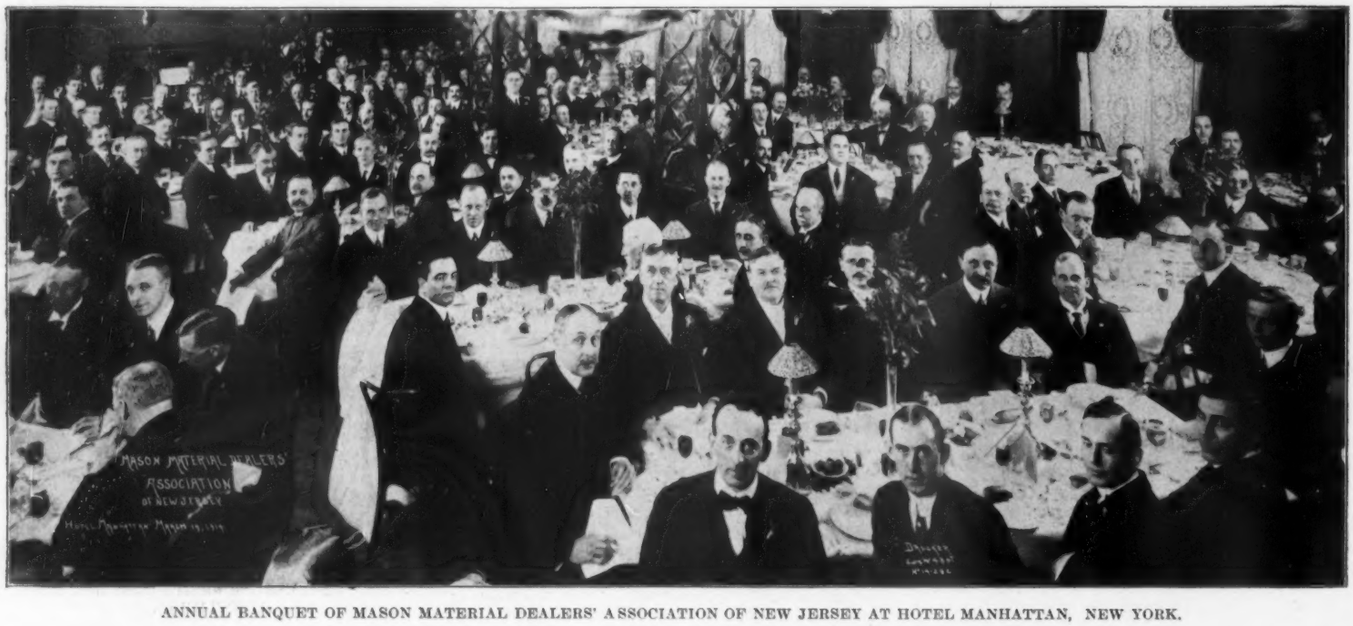
The prospect that the railroads will be directed to increase their revenues by this entirely new system of terminal or handling rates for "extra services" as well as by the prevailing rate for haulage, cannot be regarded as particularly cheering to the building material dealer. The dealer, in common with most men of large interests, feels that the prosperity of general business is largely dependent on the prosperity of the railroads, but the average building material dealer will seriously object to contributing more than his share to the general uplift.

To the man who is acquainted with freight yard and terminal conditions as they exist in towns and cities in the East, it would seem an absurd proposition to make a charge for placing a car on a dealer's private siding. The relief afforded to a congested public freight yard by having a car unloaded on private property will more than off-set the slight cost to the railroad for placing. Certainly if there is any class of business that should be exempt from "spotting charges" it is the coal and building material business.

The Botzum Bros. Co., Akron, Ohio., has been incorporated to deal in builders' supplies; capital stock, $100,000; Charles Botzum, Harry Botzum, Albert Botzum, Joseph Botzum and Lewis Botzum.

The Beckers-Behrens-Gist Lumber Co., St. Louis, Mo., incorporated. Alexander B. Beckers, Charles C. Behrens and Thomas Gist, incorporators. Will do a general lumber and building material business. Capital stock, fully paid, $30,000.

Pinson Sand and Gravel Co., of Huntington, W. Va., has been incorporated and will deal in building supplies; capital stock, $10,000. Incorporators: Geo. D. Miller, Wm. L. Pinson, Henry P. Pinson, Edward S. Doolittle, Huntington, W. Va.; M. O. Rutherford, Mora, Minn.



ANNUAL BANQUET OF MASON MATERIAL DEALERS' ASSOCIATION OF NEW JERSEY AT HOTEL MANHATTAN, NEW YORK.

Cleveland Companies Merged.

Facilities of Cuyahoga Builders' Supply Company Greatly Increased by Consolidation With Stowe-Fuller Company.

The Cuyahoga Builders' Supply Company, 600 Schofield building, Cleveland, Ohio, has increased its capital stock from $100,000 to $250,000 and the retail and local business of the Stowe-Fuller Company, Rockefeller building, has been merged with it, making one of the largest building supply houses in the country. The company will occupy modern quarters on the thirteenth floor of the Schofield building.

One-half of the stock of the new company is held by the former owners of the Cuyahoga Builders' Supply Company and the other half is taken by the stockholders of the Stowe-Fuller Company. The officers have stated that there is not a drop of water in the capitalization and the combined equipment gives the concern warehouses in all parts of the city and every facility for keeping up with Cleveland's growing demand for building materials.

The Stowe-Fuller Company started in business in 1890 and grew to a position of the second largest fire brick concern in the United States. The company continues the wholesale end of the business, marketing the product of four fire brick plants in Ohio and Pennsylvania owned by its stockholders. It turns over to the Cuyahoga Builders' Supply Company all its retail business in fire brick, cement and builders' supplies.

William A. Fay organized the Cuyahoga Builders' Supply Company three years ago and soon afterward purchased the retail business of the Cleveland and Pittsburg Coal Company. It has four warehouses, advantageously located on East and West sides of the city, and has been one of the most active concerns in its line in Cuyahoga county for the past three years.

Mr. Fay, who is to have the general management of the enlarged business, recently returned from a vacation in Florida and he is enthusiastic over the future of the concern and the building outlook for the present year.

In a recent discussion of the combination, Joel Fuller, head of the Stowe-Fuller Company, said:

"Each company contributes real, live assets in the shape of stock of goods, the best located warehouses in the city, trucks, teams and, in fact, complete facilities for conducting the business and money necessary to do it with.

"We will be able to furnish everything for a building except the lumber. With such men as Mr. Fay and Earl Ross on the firing line and a substantial organization back of them we ought to have the good will of the public."

The directorate of the new company will include Joel H. Fuller, William A. Fay, Earl Ross and Charles E. Kapitzky. Charles B. Stowe and Mr. Fuller remain actively at the head of the wholesale business of the Stowe-Fuller Company.

The Efficient Contracting & Supply Company has been organized at Webster Groves, St. Louis county, Mo., with a capital stock of $5,000, the incorporators including E. W., M. D. and C. Davis and William O. Davis.

Articles of incorporation of the Valley Sand and Gravel Co. were filed in the office of the county recorder, at Marshalltown, Ia., Wednesday, February 18. According to the articles the company intends to deal in sand and gravel, cement and cement products, and building material. The authorized capital stock is $10,000 divided into shares of $10 each. The officers and directors are W. E. Beigel, Onawa, president; E. C. Barber, Cedar Rapids, vice president; and E. D. Twogood, of this city, secretary and treasurer.

WM. A. FAY, PRESIDENT, REORGANIZED CUYAHOGA BUILDERS' SUPPLY CO., CLEVELAND, O.

The Crowell-Thompson Co., West Lafayette, Ind., has been incorporated; capital, $50,000; will deal in sand, gravel, cement. Directors: Clifford Crowell, William L. Thompson and Florence S. Crowell.

Arthur E. Foulds, of Brantford, Canada, recently opened a builders' supply busines in that city. The business will be operated from headquarters in the Canadian Bank of Commerce building.

The Universal Contractors' Material Co., Cincinnati, Ohio, incorporated. Will deal in builders' supplies; capital stock, $25,000; Jas. E. Klimper, Logan C. Miller, Geo. B. Meyer, A. B. Dunlap and Francis X. Farrell.

Huyssoon-Kipp Co., Hackensack, N. Y., incorporated, will deal in coal, stone, building materials, etc.; capital, $60,000. Incorporators: J. H. Huyssoon, Rochelle Park; F. S. Kipp; M. P. Kipp, Hackensack.

David Bowman Coal and Supply Co., Ltd., Winnipeg, Manitoba, Canada, dealers in fuel coal and timber and builders' supplies; incorporated; capital stock, $100,000, divided into 1,000 shares at $100 each. Incorporators: Mr. and Mrs. David Bowman, Edgar H. Matheson, Phillip C. Locke and Frederick R. Sproule.

Enters Business at St. Paul.

Former Chicago Specialty Man Forms Company to Cater to Twin City Business—Uses Unique Arguments to Draw Customers.

F. J. Morse, who has been known to the trade as a waterproofing specialist with headquarters in Chicago, has left this city and entered the building material business in St. Paul, Minn., under the firm name of The Builders Material Co. It is the aim of the new company to carry a complete line of materials, including brick, cement, lime, hair, sewer pipe and drain tile, prepared roofing, plaster and building specialties.

The Builders Material Co. was formed last October by Mr. Morse after a number of visits to St. Paul. These visits were made in behalf of his waterproofing business and the acquaintances formed at the different times had a great deal to do toward making St. Paul his future home.

He states that it is a great pleasure to report that business starts off as though his company was an old established house. "Our two cities, St. Paul and Minneapolis," says Mr. Morse, "I believe, are two as live cities as can be found. It is here that I have come to locate in the retail business and I hope that the twin cities and the Builders Material Co. will prosper together."

Mr. Morse's entry into the building material field took place when he became Chicago representative for the Sandusky Portland Cement Co.

While the company starts in a small way, it has facilities for giving satisfactory service to its customers and the officers have arranged for trackage for seven cars. The yard room is sufficient for a complete stock of sewer-pipe, flue lining, and wall coping. One of the arguments used to induce builders and contractors to call on them for materials is that the yard is located on good, level ground and is easy of access. To show that they are progressive, the members of this organization have purchased a motor truck, one of the slogans being, "a motor truck or team always ready for delivery." The yard is centrally located and is surrounded with streets in good condition, practically all of them being paved.

The Taggart & Brown Co., Springfield, Ohio, incorporated; will deal in builders' supplies. Capital stock, $20,000. Incorporators: R. A. Brown, J. A. Taggart, W. W. Witmeyer, C. G. White and H. C. West.

Entwisle & Co., Inc., Mineola, N. Y., incorporated and will manufacture and deal in lime, cement, building materials, realty, construction, contracting, goods, wares, merchandise; capital, $100,000. Incorporators: E. Entwisle, Mineola; F. L. Entwisle, M. Baumann, Brooklyn.

BIRDSEYE VIEW OF THE BUILDERS' MATERIAL CO.'S WAREHOUSE AND YARD AT ST. PAUL, MINN.

Coal and Ice In Builders' Supply Business

BY GEORGE A. OLSEN.

Read Before the Fifteenth Annual Convention of the National Builders' Supply Association at Chicago, Feb. 18, 1914., and the Second Annual Meeting of the New York State Builders' Supply Association at Rochester, N. Y., March 18, 1914.

In studying the coal and ice departments of the individual builders' supply business, certain questions arise which are indeed hard to answer. Some cannot be answered in a general way, as local conditions become a great factor and change what might be considered a set rule. The foremost question concerns delivery.

Coal is a natural product to handle in connection with the builders' supply business. A large portion of the demand for coal is at such times of the year when it does not interfere materially with the delivery of building materials.

While there is some demand for coal during the summer months, the delivery of fuel does not commence in earnest until the first cold weather sets in. The requests for coal during the summer months are not as a rule for delivery at a certain time; but the delivery can be made at the option of the dealer. The average dealer makes it a point to deliver his building materials to the various jobs as early in the day as possible, in order that the purchasers thereof may be satisfied, and the workmen be not delayed in the construction of the work under way. These materials may have been delivered before the working day has drawn to a close. It is then that a load or two of coal may conveniently be delivered to a purchaser who buys early in the season in order to saxe the difference in price between summer and winter delivery. These orders are usually given with the request, "Deliver when you have the opportunity."

Along in September, when the first touch of cold weather comes, the man who handles coal in connection with his builders' supplies will find himself pressed for time in order to make satisfactory deliveries. According to the Leary Coal Co., of Kansas City, Mo., who handle both coal and builders' supplies, the rush for immediate delivery starts early in September. Without much effort during the first week of last September this company received orders for 60 tons of hard coal.

Now, the first week in September—and the entire month for that matter—is a busy time for the building material dealer. Contractors are anxious to finish the jobs they are on or to start new ones which may be completed before cold weather sets in. They order supplies with an urgent request that they be delivered at once. The dealer is pushed hard for time; especially is this true if he conducts his business in a fair sized city.

The average builders' supply dealer makes a practice of taking care of the orders personally. Salesmen may bring them in, but the manager or proprietor as a rule goes over them. With this work on his hands, he is kept quite busy. In addition to caring for the retail end of his business, the average dealer has his hands full trying to get materials into his yards and warehouses from the manufacturers—and from the railroads. He cannot afford to be bothered with coal orders at such times. What is the result?

The coal business must be left to subordinate officers or suffer. If left to others it is equivalent to starting a special coal department, which necessarily requires a special set of books and a special set of employees to take care of this business. Wm. Moellering & Sons, of Fort Wayne, Ind., conduct their business along these lines. They have their regular building material business. They also conduct a coal business; but while it is conducted from the same office, it has its special manager, employees, teams, yard, teamsters, etc. It is even conducted under a different name. Every one in Fort Wayne knows that the Pioneer Coal Co. is the property of Wm. Moellering & Sons. According to Ed. Moellering, manager of the builders' supply department, this is the only satisfactory manner in which to handle the coal business in connection with the builders' supply industry.

The question you are now asking yourselves is: "Do they ever loan to each other the use of teams, wagons and employees?" My answer is: "They do." But with the business divided, each department manager looks after his particular business and endeavors to keep his teams going the year round. The coal department manager succeeds in the Moellering Co. case. He has worked up a good summer delivery business, selling steam as well as hard coal.

In this instance the builders' supply department has occasion to loan their teams, wagons, and employees to the coal department during the winter months. If the demand for coal is not heavy enough to warrant this, the builders' supply department employees and equipment remain idle.

The ice business is not as frequently engaged in by building material dealers as is the coal business. The Moline Sand Co., of Moline, Ill., conducts a builders' supply, coal and ice business, and are very well satisfied with the arrangement. I asked one of the officers recently if they would combine the same lines of business if they were to start all over again and had their present knowledge of the advantages and disadvantages of the business as they now conduct it. His answer was in the affirmative.

They entered the ice business 22 years ago, five years later taking on coal and wood. Ten years ago they took on sand, gravel, cement and other building materials, except lumber.

Believing that the delivery of coal was the only thing to keep this company busy, I put the following question to Mr. James P. Pearson, its president: "As ice, sand and other building materials are delivered during the warm months, are the times used in the delivery of coal sufficient to care for your haulage problem during the winter months?"

His reply was: "The harvesting of ice and hauling of coal keeps nearly the same number of teams going in the winter."

Getting right down to the subject of this paper, I asked, "If you were to start all over again, would you recommend the association of coal and ice with builders' supplies?"

His answer is interesting: "A combination of all lines makes for economy on account of your teams, keeping your own barn boss, own horse shoer and blacksmith, same office, light and fuel. There is also a saving on collectors and bookkeepers.

"You must consider that it is necessary to have these combined businesses on the same ground, so it can be watched and managed from one place. You must also have sufficient ground and railroad tracks to carry on a large scale these various enterprises. This ground and trackage is hard to get; and by combining the different businesses, you solve a perplexing problem. I believe we have the best laid out yards in the country for carrying on these different branches of our business."

You noted that this concern harvested its own ice.

Where the dealer purchases all of the different products which he handles, he may handle ice to advantage during the summer providing his coal business is the largest of the three. He may then use his coal teams and teamsters on the builders' supply and ice wagons during the summer months—although this must be remembered: Drivers of ice wagons must be men of a higher type than drivers of coal and builders' supplies. The ice man must know how to enter the kitchen and deliver his ice without offending the mistress of the house. He must also be partially a salesman. He must be able to explain why ice melts so rapidly in warm weather and why its price keeps rising.

The average housewife has coal delivered once or twice a year and does not object to a coarse or vulgar man delivering her coal. She does not object to his dirty or unkempt appearance. She concludes that his work is of such a nature that he is necessarily kept in this condition while busy—or she may not think of it at all, because it is perfectly natural for coal men to be as black as the coal they handle. Many of them wouldn't be content if they were otherwise.

Opposition to the Consolidation Idea.

I want to mention just a few remarks that have come to me from opponents of the combination idea. These remarks come from men who are among the foremost dealers in the country and who have given this topic consideration.

From the city of Atlanta, Ga., the National Builders' Supply Association has as one of its members and as vice-president, Mr. V. H. Kriegshaber. He is a man who believes thoroughly in concentration. He is in the builders' supply business and in it alone. Hear his words:

"Primarily, I would ask why should coal, wood, and ice be associated with legitimate building supplies any more than some other commodity, such as groceries, stock food, or farming implements? Of course, if a firm wants to run a country store, there are a great many more items which could be added to this list. I am convinced that it does not pay to handle too many lines, especially in a jobbing business. If you put your entire time and energy pushing one line, you will meet with far more success than if you divide it up among a great many.

"In the second place, your customers in the building material business are usually entirely different from those whom you would solicit for coal and wood orders. A man's ability in the building material business, either as a salesman or office man, can usually be measured by his intimacy and influence with architects, contractors and builders in his community. It requires a great deal of time, hard work and tenacity to reach the point where he is on good terms with all of the trade. When he has reached this point, it then means constant calling and soliciting to keep his trade, for if you once drop behind, you are soon gone and forgotten.

"Now, for example, you have a good crowd of salesmen on your force who have reached that pinnacle of salesmanship which assures them a welcome in any office, and as a matter of course, nice orders to follow. As fall comes on, building slackens up and you put these same men out on the street selling coal and wood. What is the result? By the time building commences in the spring your crowd has lost out. They are not in close touch with your trade, and you are the sufferer. Has the coal and wood business which you have done in the winter—which has kept your teams and motor trucks busy, and paid running expenses—justified this? You admit that coal and wood are just side lines to your building material business. You certainly would not allow them to be a detriment to your legitimate line—and they most assuredly are.

"The time is fast coming when teams will be done away with entirely in hauling material. The motor truck with its capacity and speed can accomplish so much more and at a much lower cost than with horses and mules, that it will not be long before the latter will be universally displaced by the truck. In the winter months the truck does not eat its head off in the garage, as it is claimed the live stock do. Then it is not necessary to keep your truck going in order to make expenses, nor is it a good idea to put teams out on slippery streets. One bad accident would more than overbalance the profits made.

"A great many concerns who have a large amount of hauling connected with their business have adopted the following plan, which is indeed a good one: As

business slackens up in the fall, they sell some of their live stock, keeping only enough teams to take care of the winter business. Usually the most worn-out, oldest animals are disposed of. In the Spring new animals are bought.

"A great many more arguments might be brought out as to why we do not associate coal and wood with our building supplies, but as a matter of fact, conditions are so different in each locality that what might work very well in the South would not do at all in the North. Equally so with the East and West. In the South here, where our winters are mild, building goes on all through the winter months, so keeping our teams busy is not such a problem. However, there are quite a few building supply concerns here who do sell coal and wood."

Michigan Man Objects to Handling Coal and Ice.

Another individual who objects to associating coal or ice with builders' supplies is Mr. Briggs of the Briggs Co., Lansing, Mich. He has the largest business in that city and is confining his efforts to a complete line of builders' supplies. He told me in his private office the other day that it was his candid opinion that a builders' supply man has no business getting into the coal game. According to Mr. Briggs, there is no money in it and a lot of bother. The greater part of the year a firm should be kept busy receiving and distributing supplies. The balance of the year—the winter months—should be given to vacations (if necessary), attending conventions, writing for and studying literature, mixing with fellow dealers and learning all you can about your own business. Speaking of the expense of keeping teams, office help, etc., during the winter months, Mr. Briggs insisted that there is always a little business to be had when it is cold, but dealers should see to it that their earnings during the good months are sufficient to offset the effects of the dullness of the winter time.

Summing up the statements and arguments I have quoted, and as a result of hundreds of communications on this topic, I wish to emphasize that I believe the solution of this problem cannot be the same in every instance. Local conditions govern the advisability of combining these different businesses with builders' supplies.

As an illustration, I will mention the situation at Kewanee, Ill., a city of 16,000 inhabitants, situated 131 miles west of Chicago. There are three building material dealers in the city, but not one of them tries to handle coal. There are, however, 12 coal dealers; but they are operators and a dealer who would purchase coal for resale has no chance.

Relative to ice this is the same. Many cities have no neighboring lakes where dealers might harvest their own ice. Others who have nearby lakes cannot secure permission to cut the ice because of some large syndicate who controls the industry. So, I again declare that local conditions must be taken into consideration.

I am somewhat skeptical about associating the ice business with the builders' supply industry. It is true that a number of dealers are combining these two industries, but because of the different type of men, wagons, warehouses, and delivery systems required, it doesn't appeal to me as practical to combine ice with builders' supplies. Ice must always be given first consideration. It is perishable freight, and must be given the preference every time. The result is that builders' supplies suffer; and your competitor without the ice drawback gets the business. Of course, there are men making a success with these combined lines. They rush into a proposition and because of their aggressiveness they win out. They are like the Irishman who had served a few years as apprentice in a carpenter shop. He thought he knew the trade, so he started out as a journeyman carpenter to seek a job.

"Shore," again answered Dennis.

"Well, then, tell me how would you make a Venetian blind?"

(Continued on Page 55.)

Building Material Dealers' Profits

By Edward M. Hagar, President Universal Portland Cement Company

There is no more vital and pressing problem confronting the manufacturers of Portland cement in this country than the profits the dealers derive from their sales of this commodity, and I appear before you in the hope that a frank discussion of the subject may lead, through your co-operation, to the use of such methods as will be fair and satisfactory to all parties concerned—the manufacturer, the dealer, the contractor, or consumer.

It must be admitted that the manufacturers have too long been content to merely furnish dealers the cement required in their business, and so long as the dealer was more or less regular in placing his orders for cement and prompt about paying his bills, the manufacturer has worried very little about the dealer's prosperity, and has not concerned himself with the profit the dealer realizes from the cement end of his business.

It is now recognized by many that the margin of profit today in the handling of Portland cement by the majority of the dealers in this country is not sufficient to induce the dealer to go out of his way to increase the volume of his business by increasing the consumption of cement in his locality. We are advised by some dealers that they keep cement in stock for the same reason that a grocer keeps sugar—he does not care whether his customers demand much or little sugar, since the profit adds so little to his net returns. A gross profit to the dealer of 5 cents a barrel for handling cement is, in the majority of cases, too small to return more than a new dollar for an old one.

During the last six months these facts have become evident as never before, and have developed, in my opiinon, for two reasons:

First: The better and more businesslike practice of eliminating speculative purchases by the dealer, and the substitution of purchases for current shipment for the general trade, or by contracts between the manufacturer and the dealer to cover specified work actually secured by the contractor.

Second: For the first time in fifteen years the price of Portland cement in 1913 remained fairly stationary throughout the year. Whereas, in the olden days we had several years in which the mill price for Portland cement varied as much as $1.00 a barrel within twelve months, last year the average variation from high to low price was probably nearer 10 cents a barrel.

Both of these evidences of the more mature and steady industry have called attention to the fact that in the past dealers have relied more upon their keen sense of prognosticating the future course of the cement market to obtain their profits than upon their ability as merchants to secure a proper margin, by making their retail price at a fair advance over the wholesale price at any given time.

As the Portland cement industry grows in size and years this tendency towards saner methods and steadier prices will proceed, and there is little likelihood of again seeing such wide variations as were encountered during the babyhood of the industry. This means that the dealers must look, as any other retail merchant, to the merchandising profit only, and not depend at all on trying to guess the course of prices.

It is being brought out by the more efficient accounting and book-keeping methods now being applied to their business by the dealers generally, that this feature has not received proper consideration.

You may ask why a large manufacturer of Portland cement, having no direct financial interest or ownership in the business of any dealer, should come before you and presume to discuss a matter apparently outside of his province, but I consider the present situation—the growing dissatisfaction among the dealers at their own returns from handling Portland cement—a grave menace to the growth of the cement industry, and, therefore, to the prosperity of the manufacturer, and I so stated at a meeting of the Association of Portland Cement Manufacturers held in Detroit in September, 1913.

I believe that cement manufacturers individually should do all in their power, both by their own actions and by consultation, each with their own dealers, who in reality constitute their agents, to insure that these dealers have sufficient pecuniary return in acting in their indispensable capacity as intermediaries, to make it to the interest of such dealers, so far as lies within their power, to increase the consumption, so that they may handle two barrels where they now handle one. We cannot expect the dealers to work to increase their own, and therefore the manufacturers' business, if it has no financial interest for them.

The Association of American Portland Cement Manufacturers and some of the larger individual manufacturers are doing a great deal of work and spending large amounts of money in the effort to increase the consumption of Portland cement by education, promotion, and publicity. This work takes a number of forms, such as literature, lectures, information bureaus, exhibitions, etc. A good deal of this work is wasted—the cement dealer in each community, no matter how small, is not anxious, or even willing, in the great majority of cases, to assist in this work among his neighbors and customers by the proper use of this educational material.

I hope you are convinced that the prosperity of the cement manufacturer is largely tied up in the prosperity of the cement dealer, and that he desires, as much as you, that you may sell a large volume of cement at a good profit. It is for your benefit, as well as for that of the manufacturer, to look at this matter in a broad way, and there is much to be gained by treating the manufacturer as your friend, as you certainly are his friend.

The manufacturer and dealer are equally indispensable to each other, and with a greater recognition of the mutuality of their interests, both will profit in a marked degree.

As to the cure for the difficulty, I do not know of any simple solution that would fit all cases, or any rules that would not be wrong or unfair in their application to more cases than such rules would fit, as the conditions of the problem are so different in large cities from small cities, and in small cities from country towns. Again, two communities of the same size may present a number of reasons, some of them even topographical, for different treatment. There is no such thing as a proper margin expressed in cents per barrel. A profit per barrel that would be correct in one community for a good-sized sale would be too great in other cases, and too small in still others. I am sure 5 cents a barrel profit is too small in almost all cases; 25 cents a barrel is too small for some sales in certain locations, and yet much too great for a number of cases that arise in the regular business of the cement dealers.

In spite of these difficulties, there are certain principles that can be enunciated; the simplest one is that manufacturers should so conduct their business, and dealers so conduct their affairs, that the dealer is permitted to and does obtain a proper return for his investment, his work, his credit risks, and the services he renders his customer and the community at large. To work out the proper details so that this principle means anything but a platitude may take time and patience. We have taken one step toward the happy solution when we realize that the present methods are far from perfect, and are injurious to both dealer and manufacturer.

The blame for the present unsatisfactory conditions rests on both the manufacturer and the dealer, and neither party to this discussion can solve the problem by himself. There is no way, either effectively or legally, that the manufacturer can compel his dealer to demand and receive a fair margin over the price paid the manufacturer, even though he may do nothing to prevent the dealer from obtaining a fair and reasonable margin. The fault lies with both, and the correction of it lies with both.

Quite recently some of the manufacturers have endeavored to at least afford some relief to the situation (although this cannot be considered a cure) by the experiment or temporary expedient of quoting all contractors and consumers, irrespective of the size of the contract, a price at least 5 cents higher delivered at the same point for the same time of delivery than would be quoted a dealer, and besides this, have increased the cash discount for payment in ten days from 1 cent to 2 cents per barrel. This permits a difference of at least 7 cents a barrel between the manufacturer's price to the contractor or consumer above that to the dealer, as the dealers generally are in position to discount their bills and the contractors generally are not. This is not, however, in most cases a sufficient margin, and the very attempt on the part of the manufacturer to protect his dealer in a good many cases tends to limiting the margin of profit to the amount of protection, and to a certain extent defeats its own object.

Again it is found that in a number of cases the dealer will not add the full 5 cents to his cost price. If a 10-cent differential should be adopted by the manufacturer so as to permit the dealer to

make that much gross margin outside of the discount, the dealer on his part would not avail himself of this margin.

Unfortunately it frequently occurs that a dealer is willing to ask practically no margin on cement in order to secure business for the other commodities which he handles for a particular piece of work, and thus injures himself by reducing the margin possible to obtain for cement in other cases. It is just as bad practice and reacts as much on the dealer to sell cement at a loss or without profit, in order to secure business for other wares which he handles, as to ask a high and prohibitive margin.

Speculation in cement by the dealer, by which he might make considerable profit if the market advances (as he hoped), but might be ruined if it declines, has been largely eliminated by the modern method of selling the dealer for his warehouse trade for shipment within 30 days only, and contracting with him for shipment later than 30 days for specified amounts to cover specific work only, for which he, in turn, has contracted with the contractor or consumer; but there still remains a practice, alike inimical to the interests of the manufacturer and the dealer, and that is so-called "padding" of specific work contracts, the contracts with the manufacturer by the dealer being made for a larger amount than the work calls for; if the market goes up, the difference in quantity is taken into stock by the dealer and rarely, if ever, sold at a price based on the current market price, thus reducing the margin on this dealer's spot business, and making it almost impossible for other dealers in that town, who have been more conscientious in their contracting methods, from making any margin whatever in competition with the padding in the specific contract made at a lower figure than the new market value. If the market declines prior to the completion of the padded contract, the manufacturer is advised that the work did not require as much as the contractor estimated. This, as well as any other practice that is not fair, honest, and in accordance with the principle of "A contract is a contract" is injurious to the dealer as well as to the manufacturer.

A great deal of money has been lost, or at least failed to be made, by indulgence in local feuds with brother dealers in the same community, and in an always reprehensible and generally useless effort to eliminate certain competition. Modern ethics require competition, but not destruction. The absence of one is as much to be deplored as the presence of the other.

Cement being a heavy commodity of low value per pound, the selling price being less for the same weight than ordinary hard coal, it follows that any expense connected with handling it from the cars into the warehouse, from the warehouse to the team, by team to the job—any one of these items or the aggregate is a disproportionately high percentage of the selling price compared to commodities of greater value per unit of weight. This is a factor that is generally not sufficiently considered.

Entirely aside from the interest and depreciation on the investment in land, buildings and warehouses, and in addition overhead expenses and return on working capital, it requires a number of cents per barrel profit to take care of the cost of carrying accounts of the dealer's customers, and, where necessary, of collecting, counting, shipping, and paying freight on returned sacks.

It is hardly necessary for me to state that many of these items of expense apply to carload business as well as to cases where the cement must be put through the warehouse or teamed to the job. The difference in cents per barrel asked by some dealers for delivery by team compared to the price which they pay the manufacturer f. o. b. cars at their warehouse is so ridiculously low that it can mean nothing but a loss on each barrel sold.

The time allotted to me will not permit my dwelling upon a number of factors that have a bearing, either directly or indirectly, on dealers' profits, some of which are worthy of a separate paper, such as dangerous granting of credits, economical warehouse facilities, businesslike methods in insisting upon written agreements with contractors as clear, concise and binding as those between the dealer and the manufacturer covering the same transaction, a strict compliance with the principle "A contract is a contract," both in dealings with the manufacturer and the customer; making quotations with definite dates of expiration to afford protection against advance of the market before decision is reached; even the carrying of proper stocks, and the giving of sufficient notice in advance of shipments required so as to avoid the expensive experience of having no cement on hand to meet the obligations of contracts or daily demand.

More important than any other one feature, outside of gross margin per barrel and volume of business, is that of the proper handling of cloth sacks. As careless methods in this respect will easily turn a fair profit into an actual loss in the handling of a given quantity of cement at the same margin, I shall touch on this subject in a cursory manner.

Cement sacks can hardly be considered a source of revenue to the dealer, but they must not be overlooked in any consideration of the items that affect his profits. Unfortunately, cement sacks have generally been a source of loss and expense. The dealer may not be altogether to blame for this regrettable condition, but here, as in many other cases, his salvation lies entirely within his own hands.

The root of all our sack troubles has been the old superstition that, through some strange dispensation of Providence, the cloth cement sack was a free package. It cannot be a free package any more than can a paper cement bag, or a baking powder can, or a biscuit box, because, ultimately, someone has to pay for it. There are three classes of people who might be called upon to pay for cement sacks—that is to say, the cement manufacturer, the dealer, or the customer. For the purpose of the present argument we will eliminate the dealer, because I am sure that the dealer does not want to pay for these packages, and I am equally sure that no fair-minded cement manufacturer desires him to do so. The question to be settled, therefore, is whether the manufacturer or the consumer shall carry this load.

There is nothing but established custom to prevent manufacturers of cement from selling their product in non-returnable packages in the same way as is done by manufacturers of canned goods, and many other commodities. In fact, we do sell a large part of our product in paper bags which are non-returnable. In determining the price to be charged for cement we add to our net price 2½ cents a bag, or 10 cents a barrel, for these paper bags. The customer buys the bags, and when he has emptied them he burns them up, or throws them away, or makes any other disposition of them that he sees fit. He has paid 10 cents a barrel for the package in which he received his cement. When we sell cement in cloth, we add to the net price of the cement 10 cents a sack, or 40 cents a barrel, for the packages, but agree with the customer to buy back from him any of the packages that are in fit condition for further service at the same price of 10 cents which we have charged him for them. This means that if the customer takes good care of his sacks, and does not allow them to be destroyed or stolen, all he will have to pay for the cement packages will be the cost of handling and shipping the sacks, plus the value of the relatively small number which may die on his hands through natural wear and tear. If a man handles his sacks in this way, his package expense will be small. If he is careless with them and allows them to be lost or destroyed, his package expense will be heavy, very heavy, but you will note that this additional load will fall exactly where it belongs.

Now, supposing that the cement manufacturers should do as many of their customers would undoubtedly like to have them, and agree to buy back worthless sacks, or even agree not to make any charge for the sacks in the first place, but only to accept with gratitude such sacks as the customer saw fit to return. A policy of this kind would have two results. In the first place, it would add to the cement manufacturer's cost of making and selling his product another great big item of expense for sack losses. In the second place, this expense would get larger every year, because there would be no inducement for anyone to go to the expense of taking care of his sacks, and presently cloth sacks would be making only one trip in the same way that paper bags now do. With this large and constantly growing expense on his shoulders, the cement manufacturer would have to get more money for his cement. He would have to spread this additional cost over all his customers, regardless of whether the individual took good care of his sacks or not. In other words, the competent and efficient consumer would be assessed a part of the loss which originated with the incompetent and inefficient user, and the result would be to put a premium on carelessness, and a penalty on carefulness.

The cement manufacturer, like any other manufacturer who desires to remain solvent, must get back from his customers the complete cost of his product, plus a fair profit. If, to the cost of our product must be added a big package loss, we must get that back from our customers. Now, isn't it fairer to get that package loss back from the customers who are responsible for the loss, instead of spreading it over the guilty and innocent alike? You can see that no matter how things are arranged on the surface, the customer of the cement must pay for the package, so the only problem to solve is the one of putting that loss where it fairly belongs. These ideas on the subject of sacks may never have been presented to you in just this way before, and it may strike you that my presentation of them has been, to say the least, straightforward, if not forcible. I want to drive these points home, because, if the cloth cement sack is ever to be anything but a source of trouble and loss to you, you must drive them home with your customers. You must make your customers understand that cement sacks are not loaned or donated to them, but the privilege of receiving their cement in returnable sacks is a privilege, and one which they must not abuse. You must make them understand that cement manufacturers have no object in buying sacks unless they can use those sacks again, so that you, in turn, are not justified in buying from your customers sacks which you cannot sell to the cement manufacturers. You must make your customers understand that the money which they lose on a few sacks is the package charge on all the cement they have handled, and you must make them understand and appreciate that even if they have to pay for a few worn out sacks, to say nothing of the sacks which are prematurely destroyed through their own misuse or neglect, they are still getting their cement in a cheaper and more economical package than any non-returnable package could possibly be.

This is going to be a difficult doctrine to preach, and it is going to require a lot of hard and thankless work, but if the sack end of the cement business is ever going to be anything except a source of friction and disputes, as well as loss to you, this work must be done, and the sooner it is started, the sooner will this package loss cease to be a charge against your profits. We have done a great deal to help the dealer in this educational work, but we want to do more. In this respect, as otherwise, the dealer's interests are ours, and incidently in the long run, the ultimate best interests of your customers, the consumers, will be served by a clear and proper understanding of this package question.

Cement manufacturers are doing wonderful work to increase the use of cement for the classes of work which have existed for some time, as well as for finding and exploiting new uses. The steady increase in cement consumption in this country, in spite of the depressions that have affected practically every other industry, would not, in my opinion, have occurred had it not been for this educational work. The thousands of cement dealers in this country are in position to render great assistance to this end, and thereby improve their own financial welfare. Broadminded manufacturers realize that their services must be enlisted, and that the desired enthusiasm must come as a result of benefit to their pocket books.

With the large amount of powerful ammunition that will be freely supplied to the dealer by the manufacturer in the shape of booklets and educational information to suit both the large and small items of cement uses in the innumerable directions in which cement is and should be used, the local dealer, with comparatively small effort, will find it easy to increase the consumption in his locality, and by so doing augment the number of units on which he will receive a certain gross profit, which will enhance the net profits in greater proportion than the increased volume of his cement trade. The greater the volume, the smaller is the necessary margin of gross profit, and the larger the volume, the greater the percentage of gross profit that may be converted into net profit.

We generally find that the dealer is not taking enough interest to educate himself sufficiently to discuss the use of cement with a prospective customer. This education is available in literature that costs him nothing.

In conclusion, the success of the cement dealer and the manufacturer largely depends upon each other, and a mutually friendly, honest feeling should exist, with a willingness on the part of both to cooperate with a real interest in each other's success.

You will find that the right minded and broad minded manufacturer is ready to assist by all means in his power to bring about the desired results. If each dealer will approach this subject with the manufacturer or manufacturers from whom he secures his supplies in a spirit of co-operation and confidence, I believe it will soon remove this question, at present so vexatious.

Eber L. Dawson has purchased the concrete block factory of J. W. Firestone in Conway, Ark.

Julian S. Nolan Co., Chicago, Ill., incorporated. Building materials and contracting. Capital stock, $25,000. Julian S. Nolan, M. Henry Guerin and Francis H. Wright, incorporators.

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COAL AND ICE DEPARTMENTS IN CONNECTION WITH BUILDERS' SUPPLY BUSINESS.

(Continued from Page 53.)

"Shore," said Dennis, "I'd hit him in the eye."

Coal Business Is Indifferent.

The coal business is somewhat different. The men who haul builders' supplies can equally as well haul coal and vice versa. The bookkeeping and office departments will notice little difference between the two. Perhaps the sales force of the building material department may resent any attempt that might be made to sell coal, but when building construction ceases in the fall and architects have not commenced any of their next season's plans, where there is little for the salesmen to do, they should be willing to call on the coal trade.

I believe in the conservation of resources. I believe that the combined efforts of two businesses so closely alike as coal and builders' supplies will make each stronger. The combination will teach the office, sales and delivery forces economy. Overhead expenses will be reduced to a minimum. Not only should the sale and delivery of coal keep the dealer from losing money during the winter months, but it should be the means of making money for him. I don't believe a progressive dealer should sell anything—building material, coal or ice—unless there exists in its sale a large enough profit to be commensurate with the handling of such product.

NEW COMPENSATION LAW PROVISION.

The new Workmen's Compensation Law of New York State, which was passed by the last legislature, provides that workmen employed in quarries; sand, shale, clay or gravel pits; lime kilns; manufactories of brick, tile, terra cotta, fireproof or paving blocks; manufactories of calcium carbide, cement, asphalt or paving material, shall receive medical attention.

An employe injured, claiming or entitled to compensation, shall, if requested by the commission, submit himself for medical examination at a time, and from time to time, at a place reasonably convenient for the employe, and as may be provided by the rules of the commission. If the employe or the insurance carrier request, he shall be entitled to have a physician or physicians of his own selection, to be paid by him, present to participate in such examination.

If an employe refuses to submit himself to examination, his right to prosecute any proceeding under this chapter shall be suspended, and no compensation shall be payable, for the period of such refusal.

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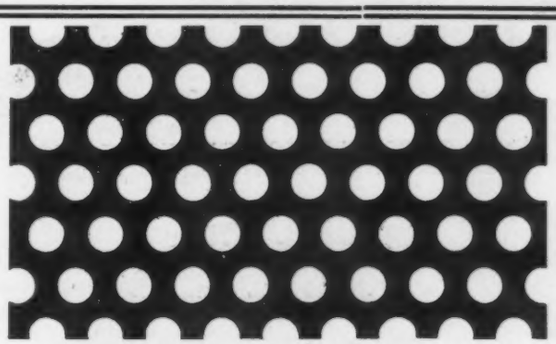

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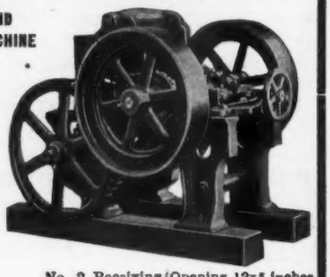
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Weight 1,800 lbs. 3 Horse Power
Guaranteed and sent on ten days' working trial, ***send in your Order*** and pay after you have tried it out.
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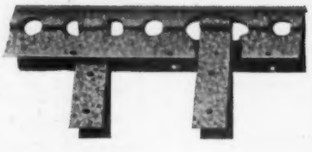

The new Wall Tie, Stress and Strain led three ways, usual number of bricks tied with half the number of ties.

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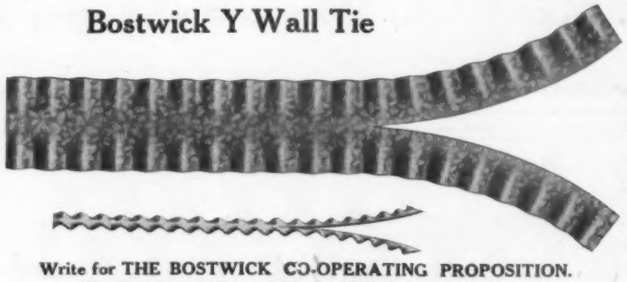
Construction in Metal Lath and Light Re-Inforcement makes the strongest and most efficient building material.
Easy to erect—economical to buy—saves labor and material—non-sagging, non-cracking—fire-proof.

Bostwick Y Wall Tie



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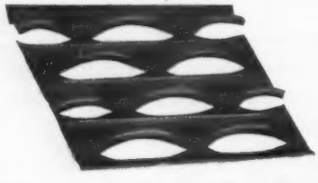
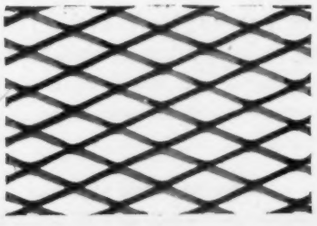
Every faculty trained upon the building prospects of the nation.

Co-operates with Bostwick dealers, increasing their opportunity and profits.





The Bostwick Steel Lath Co.
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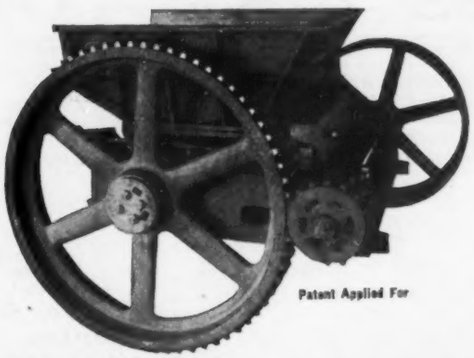

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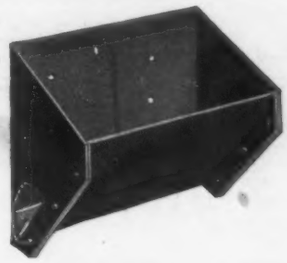

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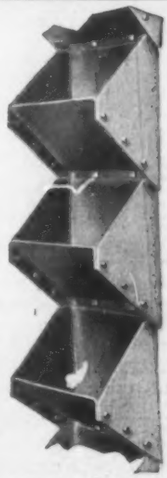

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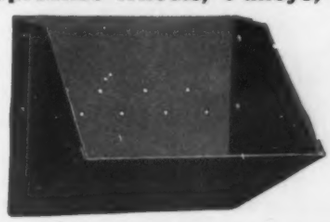

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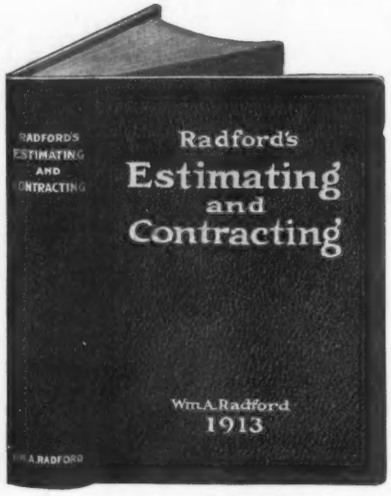
It is mighty easy to overlook some important detail if it is not down in black and white. Jobs are lost because of too high prices. Profits are lost because prices are too low. Be on safe ground; have a reliable, accurate guide to help you in your figuring.

Radford's Estimating and Contracting is a safe and sure guide for any contractor. Its 900 pages are filled with up-to-date methods for rapid, systematic and accurate calculation of costs of all types and details of building construction and all related work of contractors.



NEW 900 PAGE BOOK

Helps to Easy Figuring

It gives quotations and other data indicating the cost of materials and labor, standard schedules and forms used for measurements and estimates, labor-saving tables and all other points a contractor, builder or carpenter should know.

Condensed Summary of Contents

ESTIMATING AS A SCIENCE
General Principles of Estimating; Estimating Essential to all Successful Business Operations; Requirements of the Good Estimator; Accuracy Versus Guesswork; What to Avoid in Estimating; Remedies for Inaccuracies.

ESSENTIAL BASIS OF ALL ESTIMATING
Analysis of Proposed Operations; Cost Finding and Cost Distribution.

CONDITIONS AFFECTING COST
Local Market Conditions; Freight and Haulage; Rates of Wages Paid in Various Trades.

METHODS OF ESTIMATING
Comparative and Analytic Methods; Approximate Detailed Estimates from Carefully Figured Data; Estimating by Cubical Contents of Similar Structures; Estimating by the Square of 100 Sq. Ft.; Estimating by Quantities; Unit-Cost for Materials.

COST FACTORS CLASSIFIED
Factors Common to Construction in General; Factors Involved in Special Types of Construction; Factors Incidental or Accessory to Various Constructions.

COSTS COMMON TO CONSTRUCTION IN GENERAL
Leveling and Preparing Site; Employer's Liability Insurance; Water Supply During Construction; Number of Men and Teams Required; Rates of Wages; Cost of Superintendence; Earth and Rock Excavation; Foundations and Footings; Back Filling.

COSTS INVOLVED IN SPECIAL CONSTRUCTION. CARPENTRY WORK
Measurements; Timber and Lumber (Grades and Sizes),

MILL WORK
Doors and Door-Frames; Sash and Window Frames; Blinds; Transoms; Mouldings; Columns and Capitals; Cupboard Doors; Store Fronts; Threshholds; Stairs and Handrails; Newels and Balusters; Grills and Spindles; Mantels and Consols; Chair and Plate Rails; Wainscoting; Screens; Weather Strips; Clothes Line Posts

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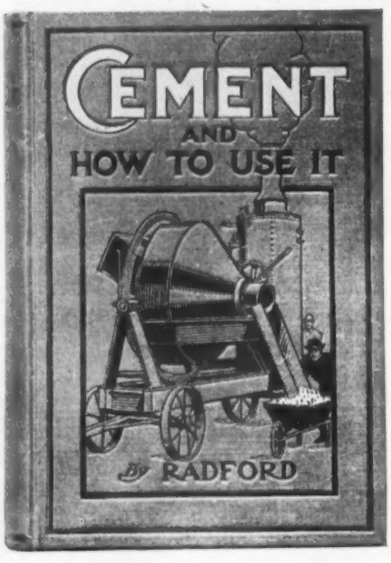

"Cement and How to Use It" is illustrated with over 350 drawings, diagrams, details, etc., including many pages of full-page plates reproducing architects' original drawings and details of construction.

"Cement and How to Use It" is divided into many parts, making it especially valuable for the reason that each particular use in which cement can be applied is given separate and distinct treatment, and anyone in search of needed information can find it instantly.

"Cement and How to Use It" is the largest book of its kind ever published. It consists of 370 pages, size, 6x9 inches, and is printed from large clear type on a high grade book paper, especially made for it.

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Two thousand topics relating to cement are discussed in this great, new book. No book attempting to treat this important subject has ever before so successfully covered the ground. Every phase, part and use of this wonderful twentieth century building and paving material is treated fully and exhaustively with complete details showing each successive step to be taken..

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Containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home builder as well as to the builder and bricklayer.

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Name of works is..... Location.....

Plans and Specification by..... Address.....

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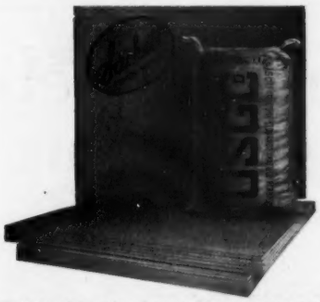
Plans and Specification are being forwarded via.....

Name .....
(Do write plainly)

Street No.....

City or Town..... State.....



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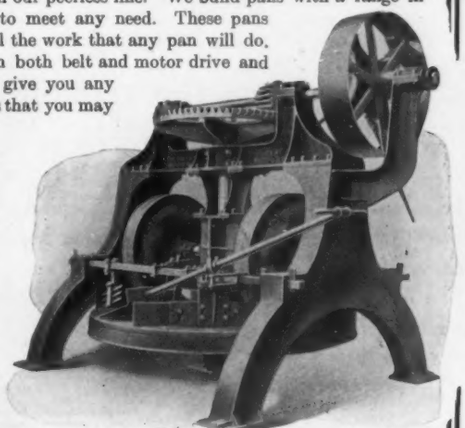
THIS pan is the identical pan required for your plant and it should speak to you convincingly of our pan quality. It has put many Sand-Lime Brick Plants on a paying basis and will make money for you. There is no line of pans made which will compare with the "Built Right, Run Right" line and your needs can be fully taken care of from our peerless line. We build pans with a range in size and capacity to meet any need. These pans are adapted for all the work that any pan will do. We have them in both belt and motor drive and will be pleased to give you any points on our pans that you may inquire about. A poor pan is an expensive proposition. Its inefficiency shows in the quality of your product and the size of your repair bills. It also limits your capacity by handicapping the rest of the equipment. Real economy would suggest that your pans be the best possible. We will be pleased to talk pans or any other equipment with you.



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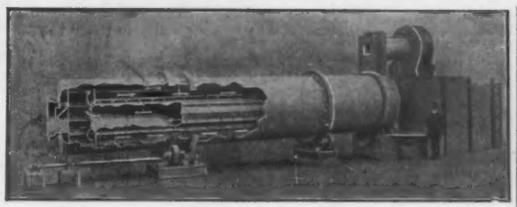

Section showing direction gases pass through the dryer.

Neither Guesswork Nor Theory

are praticed by us when it comes to solving a problem in drying. We know what we can do for we have been specialists in the drying field for the last 16 years.

RUGGLES-COLES "DOUBLE SHELL" DRYERS

are used in all parts of the world, there being more than 350 installations. Over half a hundred are used for drying sand and gypsum at plaster, brick and cement plants.

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Book "What We Dry" will interest you.

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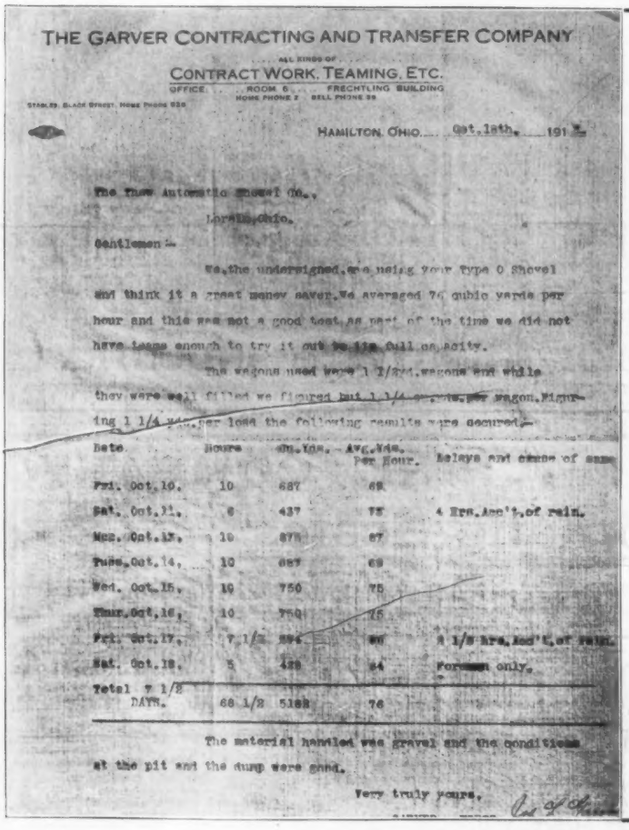

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HAMILTON, OHIO, Oct. 18th, 191

The Thew Automatic Shovel Co.,

Lorain, Ohio.

Gentlemen:-

We, the undersigned, are using your Type O Shovel and think it a great money saver. We averaged 76 cubic yards per hour and this was not a good test as most of the time we did not have loads enough to try it out to its full capacity.

The wagons used were 1 1/2 yd. wagons and while they were well filled we figured but 1 1/4 cu. yds. per wagon, figuring 1 1/4 yds. per load the following results were secured.

Date	Hours	Cu. Yds.	Avg. Yds. Per Hour.	Delays and cause of same
Fri. Oct. 10.	10	687	69	
Sat. Oct. 11.	8	437	75	4 Hrs. Acc't. of rain.
Mon. Oct. 13.	10	875	87	
Tues. Oct. 14.	10	687	69	
Wed. Oct. 15.	10	750	75	
Thur. Oct. 16.	10	750	75	
Fri. Oct. 17.	7 1/2	594	80	2 1/2 Hrs. Acc't. of rain.
Sat. Oct. 18.	5	428	84	Foreman only.
Total 7 1/2 DAYS.	68 1/2	5128	76	

The material handled was gravel and the conditions at the pit and the dump were good.

Very truly yours,

Type O Thew Shovel Handles Large Outputs

Large outputs can be secured with a small Thew Shovel if proper facilities are provided for removing the material promptly.

The writer of this letter installed his Type O Thew Shovel on the work referred to therein October 10, 1913, and completed his contract January 13, 1914.

The average outputs of the shovel for the entire contract of over 50,000 cubic yards exceeded 600 cubic yards per day.

USE A THEW—IT PAYS

Write for Catalogue "R"

Thew Automatic Shovel Co.

Lorain, Ohio

WELL ER-MADE

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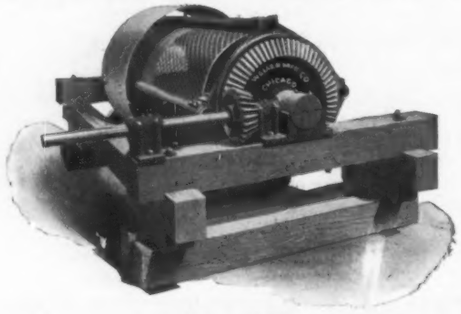
Rock Crushing Plants, Lime Kilns, etc., insures the economical handling of your material—which is essential to your business.

All your Elevating, Conveying and Power Transmission problems can be solved by employing the Weller Machinery. It is built to SERVE and to SATISFY. Weller machinery is recognized as the correct method for handling rock and other heavy materials. It saves labor and minimizes your running expense. The Weller Power Transmission machinery is known and approved for its quality and utility.

WRITE for our catalogue No. 20, containing all the Weller products—free on request.



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M-O "43" 1½-yd. Traction Shovel. Stone Quarry of John D. Owens & Son, Owens, Ohio.

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M-O "43" 1½ Yd. Traction Shovel

Spur Gear Drive and Separate Steering Engine

The Railroad Shovel is readily converted into a Traction shovel by removing the trucks, jacks, Couplers, air brakes, etc., and then bolting up underneath the frame, the forward and rear traction axles and the driving shafts. The steering engine is mounted on the floor at the extreme rear end of the shovel and is connected to a steering screw for slewing the rear axle. Power for driving is transmitted from the main engines by spur gearing direct to the traction wheels on the front axle, thus doing away entirely with the bothersome sprocket chains now employed for this purpose. The steering lever is placed within easy reach of the shovel runner, when in his usual position, so that he has full control of the steering and propelling movements.

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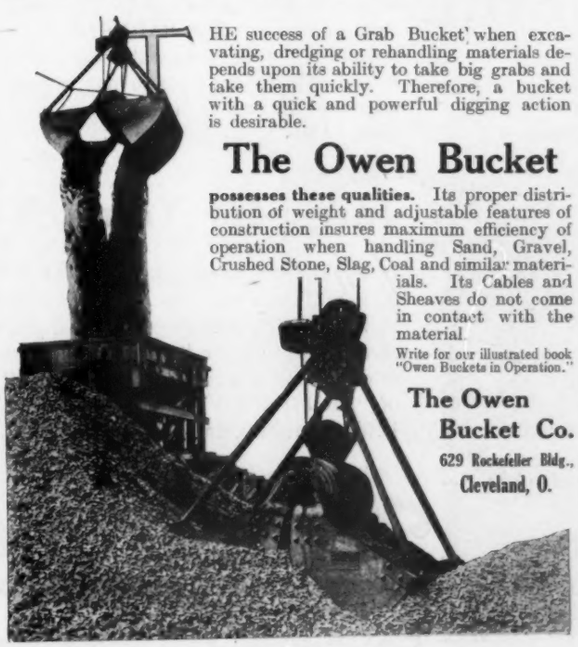

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The Owen Bucket

possesses these qualities. Its proper distribution of weight and adjustable features of construction insures maximum efficiency of operation when handling Sand, Gravel, Crushed Stone, Slag, Coal and similar materials. Its Cables and Sheaves do not come in contact with the material.

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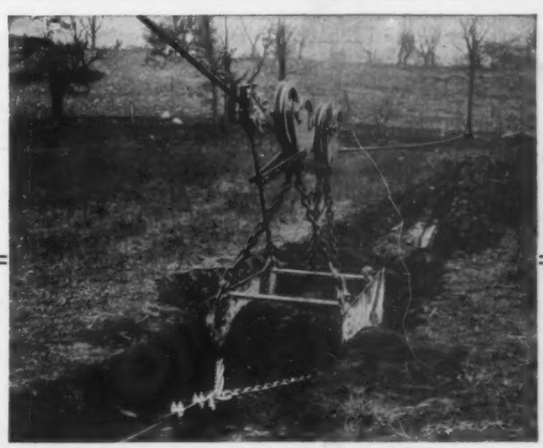

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Designed for All Classes of Slack Line Excavation

Especially adapted for gravel plants, stripping purposes, loading cars and handling bulk material by means of cableway excavation. We have had fifteen years of engineering and contracting experience, and we offer our services to aid in your problems.

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This is an age of specialization—Contractors and Quarry Operators who use Armstrong Special Blast-Hole Drills do so because the "Armstrong Special" is designed exclusively for drilling BLAST HOLES—NOT WELLS.

"Armstrong Special" Blast-Hole Drills are not well drills. We build well drills and have been since 1867, but we know, as do scores of successful contractors and quarrymen, that well drills are not designed for and will not stand the grief of blast-hole drilling (a comparison of machines which have been in operation for a reasonable period of time will convince you). Behind our knowledge is fifty years of drill building experience—behind the experience of users is the knowledge that ARMSTRONG machines are not only more efficient, but the repair, operating and "upkeep" expense is much less, due to the fact that

The Armstrong Special Blast-Hole Drill is the only Cable Blast-Hole Drill designed and sold exclusively for Blast-Hole Drilling

That is why it accomplishes more for the Quarryman and Contractor than any machine of any other type

Armstrong Special Blast-Hole Drills operating in Kosmosdale quarry of Kosmso Portland Cement Company, Louisville, Kentucky. Capacity of plant 3000 barrels daily

This view shows that the Armstrong "Special" is adapted to almost any quarry condition.

Every working part of the "ARM STRONG" Special Blast-Hole Drill is designed with direct reference to hard rock drilling. The "ARMSTRONG" spudding beam—the most important feature—gives a quick, sharp, springy blow that drills more hole at less cost than any other. The "ARMSTRONG" raises the tools as fast as they drop and **does not allow the tools to rest at the bottom of the hole** as in the case of well drills.

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If we can prove to you that the "ARM-STRONG" will drill blast holes cheaper and better than any other machine, you surely want to know it. All you have to do is send a postal asking for proof of "ARMSTRONG" Special Blast-Hole Drill superiority, and address today to

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BUILT FOR SERVICE SINCE 1867

This illustration shows one of four machines used by the Indiana Excavating Co., at Indianapolis, where a mile and a half boulevard is being constructed. The conditions are such that the slack cable-way system alone was adaptable. In investigating equipment for this work, capacity, power, cost of operation and maintenance were considered.

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Perform All Slack Cable-Way Operations

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With a double drum hoist this machine will excavate, elevate, convey and dump the material in one continuous forward operation. The bucket can be dumped fast or slow, as the conditions require as the entire operation is under **positive control** of one operator.

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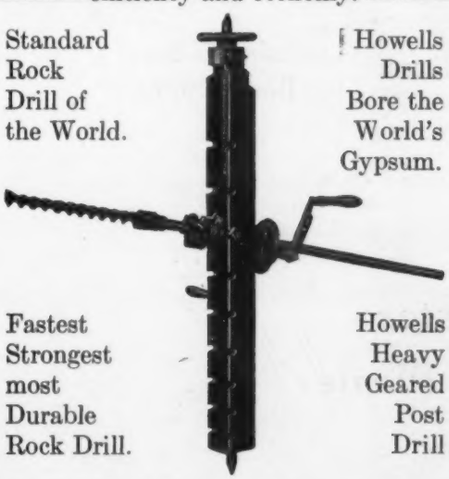
Standard Rock Drill of the World.

Howells Drills Bore the World's Gypsum.



Fastest Strongest most Durable Rock Drill.

Howells Heavy Geared Post Drill

Thousands of these drills doing duty everywhere—speak for themselves.

These drills have a record—can't be beat. Will drill from five to seven inches per minute in gypsum or soft rock.

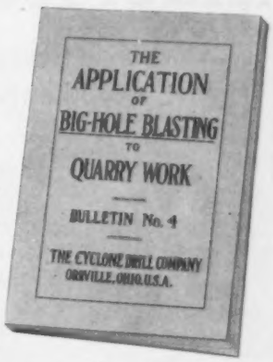
We make over 40 different kinds of Auger Drills, operated by Hand, Electricity and Air

Howells Mining Drill Company

Plymouth, Pa., U. S. A. :: *Write for Catalogue No. 28 today*

IT PAYS DIVIDENDS

THIS BULLETIN



It explains just how the big-hole method of blasting reduces the cost of stone.

The analysis embraces not only drilling and shooting operations, but it deals with the quarry plant as a whole and shows how the big drill increases output and reduces cost in ALL departments.

THE BULLETIN contains 68 pages, with illustrations showing 32 plants where CYCLONE DRILLS are earning from 100 to 500 per cent on the investment.

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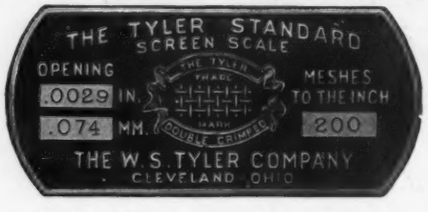

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Ratio $\sqrt{2}$ or 1.414			
Opening in Inches	Opening in Millimeters	Mesh	Diam. Wire, Dec. of an Inch
1.050	26.67		.149
.742	18.85		.135
.525	13.33		.105
.371	9.423		.092
.263	6.680	3	.070
.185	4.699	4	.065
.131	3.327	6	.036
.093	2.362	8	.032
.065	1.651	10	.035
.046	1.168	14	.025
.0328	.833	20	.0172
.0232	.589	28	.0125
.0164	.417	35	.0122
.0116	.295	48	.0092
.0082	.208	65	.0072
.0058	.147	100	.0042
.0041	.104	150	.0026
.0029	.074	200	.0021

THE Tyler Standard Screen Scale Sieves have been constructed from wire cloth, specially prepared, with accurately measured openings that increase and decrease throughout the series in a fixed ratio. The Screen Scale has as its base an opening of .0029 inches which is the opening in 200 mesh .0021 wire—the standard sieve as adopted by the Bureau of Standards.

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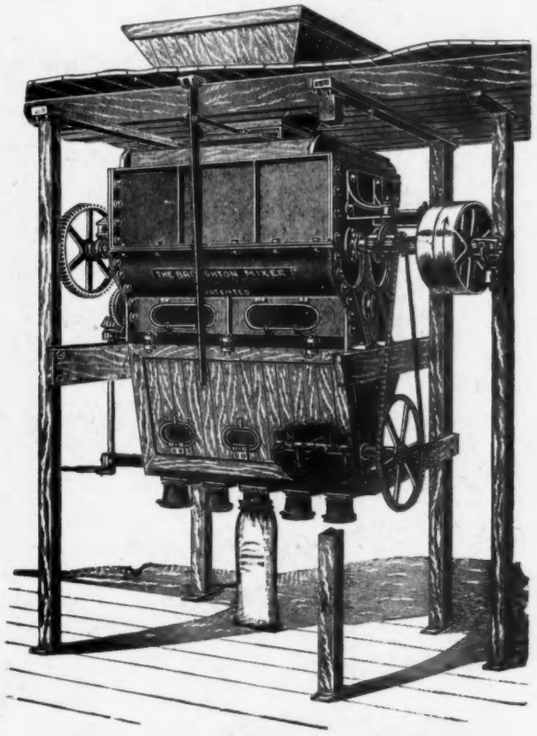

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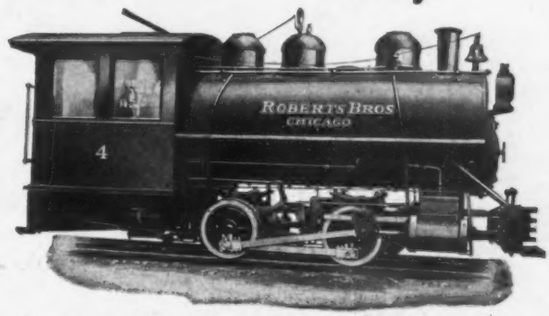

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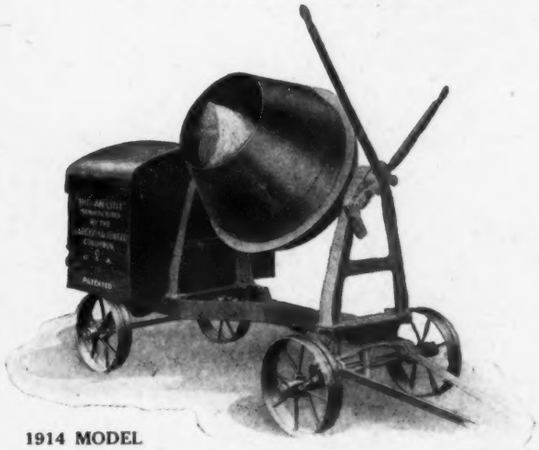

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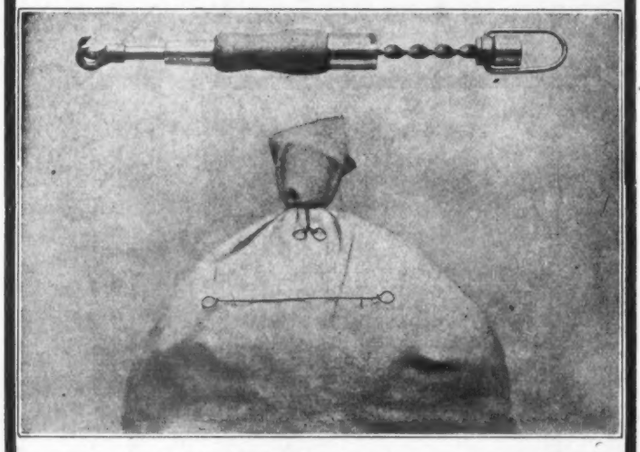

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